

# MOYNIHAN STATION DEVELOPMENT PROJECT



## Technical Memorandum

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# **FINAL TECHNICAL MEMORANDUM FOR THE MOYNIHAN STATION DEVELOPMENT PROJECT**

**June 2010**

## **Foreword**

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This document is the Final Technical Memorandum for the proposed Moynihan Station Development Project, sponsored by the New York State Urban Development Corporation, doing business as the Empire State Development Corporation (ESDC). An Amended General Project Plan and Draft Technical Memorandum were issued by ESDC on March 26, 2010, at which time both documents were made available for public review. Oral and written comments were received during a public hearing held by ESDC on Wednesday April 28, 2010, at the Farley Complex in New York City. Written comments were accepted from issuance of the Draft Technical Memorandum through the public comment period, which ended May 28, 2010.

This Final Technical Memorandum reflects all relevant substantive comments made on the Draft Technical Memorandum during the public hearing and subsequent written comment period. In summary, descriptions of the street level components of the platform ventilation system (in response to public comments) have been added to Section 1, “Project Description” and Section 8, “Historic Resources” and Figure 1-5, “Moynihan Station – Amtrak Station Option, Street Level” has been updated to show the proposed locations of the ventilation system sidewalk grates. In addition, a discussion of the New York City Department of Transportation’s (NYCDOT) 34th Street Bus Rapid Transit project, which was recently announced to the public, has been added to Section 2, “Analytical Framework” of this Technical Memorandum, and a discussion of a recently adopted National Ambient Air Quality Standard for sulfur dioxide has been added to Section 16, “Air Quality.” These and other less notable updates and edits to the document are identified with text that has been double underlined. This Foreword is not double underlined since it is wholly new to the document.

**A. INTRODUCTION**

On August 14, 2006, the New York State Urban Development Corporation, doing business as the Empire State Development Corporation (ESDC), adopted findings for the Farley Post Office/Moynihan Station Redevelopment Project (the Farley/Moynihan Project) pursuant to the State Environmental Quality Review Act (SEQRA) and based on a Final Environmental Impact Statement (FEIS) issued by ESDC in 2006 (the 2006 FEIS). ESDC also affirmed a General Project Plan (GPP) for the Farley/Moynihan Project. Since affirmation of the GPP, ESDC and the Moynihan Station Development Corporation (MSDC), a subsidiary of ESDC, have formulated and are considering modifications to the project (now referred to as the Moynihan Station Development Project, the “Project”) and ESDC/MSDC are considering modifications to the GPP. The proposed project modifications relate to the design and financing of the Daniel Patrick Moynihan Station (Moynihan Station). This Technical Memorandum describes the proposed modifications and examines whether they would result in any significant adverse environmental impacts not adequately addressed in the 2006 FEIS.

**2006 FINAL ENVIRONMENTAL IMPACT STATEMENT**

The Farley/Moynihan project assessed in the 2006 FEIS consisted of two phases. Originally estimated to be complete by 2010, Phase I was to include a new, approximately 300,000-square-foot Moynihan Station with 86,000 square feet of transit-related retail, up to 265,000 square feet of space for the United States Postal Service (USPS), together with certain common areas and common building systems serving the Farley Complex for continued USPS operations, and approximately 683,000 square feet of privately sponsored commercial development within the Farley Complex. New Jersey Transit (NJT) was assumed to be the primary rail occupant in Moynihan Station. The commercial development within the Farley Complex included retail, banquet facility, and hotel space. Phase II was to include either a new residential or mixed-use building constructed by 2010 on a site across Eighth Avenue (the Development Transfer Site) or a new office building constructed by 2015 over the Western Annex portion of the Farley Complex using approximately 1 million square feet of the Farley Complex’s unused development rights.

## SUMMARY OF PROJECT MODIFICATIONS

A summary of key Project modifications are presented in Table 1-1 and further described below.

**Table 1-1**

**Summary of Key Moynihan Station Project Modifications from 2006 FEIS**

<b>2006 FEIS Moynihan Station</b>	<b>Proposed Moynihan Station</b>
New Jersey Transit as primary occupant, open station orientation serving all railroads. No relocation of primary rail facilities from existing Penn Station.	Two options for rail occupancy. Amtrak as primary occupant in first option with relocation from current Penn Station. The Technical Memorandum also includes an Open Station Option with a station configuration that serves all railroad users.
Station and all improvements funded and implemented in one phase and expected to be completed by 2010 along with the Development Transfer Site building.	Station and all improvements expected to be completed by 2015. In addition, project funding and approvals have been broken into two phase in order to secure funding and implementation of Phase 1 improvements to the West End Concourse and 33rd Street Connector.
New vertical circulation elements.	Modified and expanded vertical circulation elements based on continued station planning.
West End Concourse widened and extended to Platform 3 (Track 5).	West End Concourse widened and extended further south to the retaining wall of the train shed.
No reuse of Diagonal Mail Platform (Platform 12).	Reactivation of Platform 12 for Amtrak Empire Line service and potential future use by Metro-North.
West 33rd Street Connector widened but not to full ADA compliance.	West 33rd Street Connector widened to full ADA compliance based on continued station planning.
New glass and metal roofs for both the proposed Train Hall and Intermodal Hall that would be visible from surrounding streets.	New glass and metal roofs for both the proposed Train Hall and Intermodal Hall with lower profiles that would not be visible from surrounding streets. The Intermodal Hall would also have a smaller footprint.
<b>Source: MSDC</b>	

- Two new options for rail occupancy in Moynihan Station. Overall, the size (300,000 square feet) and the program (major transportation hub with some transit-related retail) of Moynihan Station are the same as were assessed in the 2006 FEIS. However, NJT is no longer assumed to be the primary rail occupant and, in the first option, Amtrak would be the primary occupant and Moynihan Station would have a layout specific to Amtrak's needs (which is somewhat different from the station layout assessed in the 2006 FEIS). New station features that are unique to this option include an expanded emergency access corridor on the lower concourse level that would also function as a baggage corridor, a different layout of waiting areas, Amtrak services, station retail spaces on the main concourse level, and only one pedestrian passageway between the Eighth Avenue USPS retail lobby and the Intermodal Hall at street level. Amtrak's anchor space would total approximately 100,000 square feet, as contrasted with NJT's 34,000 square feet in the 2006 plan. In the second option, there would not be a primary rail occupant; instead, Moynihan Station would accommodate, and be accessible to, both the commuter railroads—NJT and the Long Island Rail Road (LIRR)— and Amtrak with a shared train board, announcements, waiting areas, and ticket vending machines in a layout more similar to the plan assessed in the 2006 FEIS.
- Two different project phases and a new Build Year of 2015. Phase 1, which has independent utility, would consist primarily of below-grade infrastructure improvements, plus street level

entrances to the West End Concourse through the Farley Building at Eighth Avenue. Phase 1 would not include new vertical circulation elements to Moynihan Station, which would be built in Phase 2; it would include new vertical circulation elements to the West End Concourse. Phase 2 would include development of the concourse and street-level components of Moynihan Station, activation of Platform 12 (further detail below), the non-station commercial development of the Farley Complex, and the development of a mixed-use building on the site across Eighth Avenue (the Development Transfer Site)<sup>1</sup>. The Build Year for the Project would be 2015. In addition, there is no longer an option for constructing an office building over the Western Annex.

- Modifications to vertical circulation elements. The number of vertical circulation elements within Moynihan Station has been increased and the layout of these elements has been somewhat modified.
- Modifications to the West End Concourse. The 2006 FEIS assessed a widening and extension of the West End Concourse on the lower concourse level to Platform 3. With the proposed modifications, the West End Concourse would be expanded further south to the train shed's southern retaining wall.
- Activation and renovation of the diagonal mail platform (Platform 12) and the two adjacent tracks beneath the Farley Complex, including new track connections to the Empire Tunnel. These rail elements have never been used for passenger service and would accommodate additional Amtrak Empire Service trains, and potentially Metro-North Hudson Line service.
- Improvements to the previous plans for the West 33rd Street connecting passageway between the West End Concourse, the Eighth Avenue A, C, and E subway line, and Penn Station's connecting concourse under West 33rd Street. The design improvements would enhance access to the subway line and improve access to the Eighth Avenue subway entrance, with improved access for riders with disabilities. The connector would be widened to full Americans with Disability Act (ADA) standards for both the east and west ramps of the connector. Turnstile arrays for the subway entrances would be shifted to the north to provide maximum circulation for transit riders and pedestrians passing through the connector.
- Design modifications to the new roofs over the Train Hall and the Intermodal Hall. The new glass and metal Train Hall and Intermodal Hall roofs have been redesigned to have a lower profile. With these lower profiles, the roofs would not rise above the Farley Complex's roof parapet and would consequently not be visible from the surrounding streets.

## **B. PROJECT PURPOSE, GOALS, AND OBJECTIVES**

Similar to the project assessed in the 2006 FEIS, the modified Project would address the following specific needs and purposes through a public-private partnership: to create a major transportation hub that improves circulation and capacity of the entire Penn Station Complex, to

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<sup>1</sup> The Phase 1 transportation improvements do not assume development of the Development Transfer Site as part of Phase 1, but it is possible that the project sponsor or designated developer may seek to advance development of the Development Transfer Site prior to commencement of the Phase 2 transportation improvements. Since this Technical Memorandum assesses all Project components for a 2015 Build year, the environment impact conclusions presented in this Technical Memorandum do not change if the Development Transfer Site is developed as part of Phase 1 instead of Phase 2.

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restore, preserve, and reuse an important historic resource, and to create a financially viable and dynamic mixed-use development opportunity.

The goals, with associated objectives, for the Project are as follows:

- *GOAL 1:* Create a major transportation hub that improves circulation and relieves capacity constraints in the entire Penn Station Complex.
  - Create a new rail passenger facility in the Farley Building connected to and coordinated with passenger operations throughout the Penn Station Complex.
  - Ease congestion of rail traffic.
  - Redirect pedestrian flow in and around Penn Station to reduce crowding and conflicting movements among intercity and commuter rail users within the passenger terminal and connecting passageways.
  - Improve access to the platforms used by Amtrak, NJT, and LIRR.
  - Provide additional passenger amenities (e.g., commuter concourse, ticketing areas, waiting areas, taxi-drop-offs, shops, and restaurants).
  - Provide state-of-the-art security, emergency response, and egress measures.
- *GOAL 2:* Restore and preserve an important historic resource.
  - Restore and preserve the exterior of the Farley Complex. Limit exterior changes to those that would not substantially alter the original design concept of the Farley Complex. Retain the historic use of the USPS retail lobby.
  - Create a new train hall filled with light and activity reminiscent of the original Pennsylvania Station.
  - Ensure that the adaptive reuse of the Farley Complex references the original Pennsylvania Station/Farley Building role as transportation resource, civic gateway, and mail facility.
  - Utilize development rights associated with the Farley Complex off site, and ensure that any development and design would be appropriate to the historic resource.
- *GOAL 3:* Create a dynamic mixed-use development opportunity in the Hudson Yards area and support city and state planning and development policy for West Midtown Manhattan.
  - Permit reuse of available space in the Farley Complex with a mix of uses that are compatible with the transportation center and land use patterns and policies in the surrounding neighborhoods of Hudson Yards, Chelsea, Hell's Kitchen, and West Midtown.
  - Permit development on a nearby site on the east side of Eighth Avenue with a mix of uses that are compatible with Moynihan Station and land use patterns and policies in the surrounding neighborhood.
  - Support economic development through the creation of jobs and new tax revenues.

### *STATION CIRCULATION BENEFITS*

The Project would have a number of passenger circulation-related benefits for rail passengers and for the railroad operators at Penn Station. For both rail occupancy options, these benefits include:

- Passenger access to the Penn Station boarding platforms would be increased by approximately 30 percent as a result of the construction of new escalators, stairways and

- elevators from the Farley Complex to the western portions of the existing station platforms, as well as Platform 12;
- Shorter walk distances and reduced travel times, particularly for passengers with origins and destinations in West Midtown Manhattan;
- Shorter platform queues and faster platform clearance following the arrival of heavily-loaded trains during the weekday peak periods;
- Improved passenger safety through new and more evenly distributed egress capacity from the platforms and through new platform ventilation;
- Improved passenger orientation and wayfinding; and
- Improved circulation to and from the Eighth Avenue Subway, including the provision of a direct ADA-compliant connection linking the subway, existing Penn Station concourses and the Farley Complex.

#### *Amtrak Station*

There would be additional benefits for Amtrak and its passengers under the Amtrak Station Option, which would deliver substantial benefits to the most heavily used and important station in the Amtrak system:

- World-class station improvements for Amtrak, with a strong street-level presence, natural light, and a high-quality station environment;
- More efficient boarding of Amtrak trains through greater physical separation of Amtrak passengers from the heavy volumes of rail commuters during the weekday peak periods;
- Expanded public spaces and passenger-handling facilities, enabling future ridership growth;
- Large quantity of public space on multiple levels surrounding the Train Hall, providing supplemental passenger waiting capacity to improve Amtrak's ability to handle holiday peaks and recover from extraordinary delay conditions and incidents;
- Modernized and upgraded support facilities for Amtrak operations;
- Operational efficiencies and cost savings associated with consolidated, state-of-the-art facilities; and
- Within the existing Penn Station, increased space and public circulation areas for commuter rail passengers, opportunities for LIRR and NJT to relocate some of their back-of-house operations and for new retail.

### **C. PROJECT DESCRIPTION**

As noted above, modifications are being proposed to the project analyzed in the 2006 FEIS. This section describes in detail Phases I and II of the Project with the proposed modifications and the two options under Phase 2 for the design of Moynihan Station.

#### **FARLEY COMPLEX—PHASE 1**

Phase 1 of the Project is the critical first step in developing Moynihan Station and also has immediate transportation benefits to existing users of Penn Station. Phase 1 consists of significant improvements to below-grade infrastructure that have independent utility and would increase capacity for existing intercity and commuter rail services, enhance subway connections, reduce congestion, allow for easier access by persons with disabilities, improve westerly access



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to the station, and improve passenger safety and security. The specific elements of Phase 1 are shown on **Figures 1-1** and **1-2** and described below:

- Expand the existing West End Concourse by doubling its width and increasing its length to significantly enhance passenger circulation space. The West End Concourse would be extended to the train shed's southern retaining wall, providing access to seventeen tracks (as compared to the nine tracks served today—Platforms 3 through 11 would be served with the Project, as compared to 7 through 11 today). The expanded West End Concourse would benefit NJT and Amtrak passengers and would continue to serve all the LIRR tracks. The expanded West End Concourse would also be large enough to accommodate ticket vending machines for passengers who currently purchase their tickets elsewhere in the station. Also, the West End Concourse expansion would allow for future access to Platforms 1 and 2 (for NJT) and to an activated Platform 12 (which is part of Phase 2 and described below). The improvements to the West End Concourse are more extensive than what were assessed in the 2006 FEIS.
- Provide 13 new West End Concourse vertical access points to and from the platforms, and 6 new vertical access points from the West End Concourse to street level. These new vertical access points would significantly reduce the time required for platform clearance. Vertical access is critical at Penn Station, because the tracks are located three levels below grade, and the speed with which passengers can get on and off the platforms has a direct bearing on train throughput. Vertical access is particularly important at the west end of Penn Station, because the existing tracks and platforms extend under the Farley Building, but today there is little or no vertical access from this end of the platforms. The West End Concourse expansion is critical to maximizing the use of the existing track-level infrastructure at Penn Station.
- Provide two new above-grade, Eighth Avenue entrances to the West End Concourse through the Farley Building, improving access and decreasing congestion at Penn Station. Passengers would be able to enter the station through the Farley Building at the corners of West 31st and West 33rd Streets. The entrances would flank the staircase leading up to the retail lobby of the Post Office. These entrances are the same as the Eighth Avenue entrances assessed in the 2006 FEIS.
- Expand and renovate the existing 33rd Street Connector between Penn Station's connecting concourse and the West End Concourse by doubling its width, thereby increasing capacity and making it ADA-compliant for the first time. This would accommodate passenger flow between Penn Station, the West End Concourse, and Moynihan Station, as well as provide direct access to the Eighth Avenue A, C, and E subway lines, and to NJT's new Access to the Region's Core (ARC) station under 34th Street that will open when NJT completes the tunnel under the Hudson River now under construction.<sup>1</sup> These improvements are more extensive than the improvements assessed in the 2006 FEIS.
- Improve Penn Station safety and security by creating new platform ventilation beneath the Farley Building. Six new ventilation fan rooms would provide additional, much-needed emergency platform ventilation capacity and include critical design elements and features that would adhere, to the maximum extent practicable, to guidelines established by the

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<sup>1</sup> Widening of the connector requires relocation or reconfiguration of Metropolitan Transportation Authority-New York City Transit (MTA-NYCT) turnstiles for the Eighth Avenue subway station. MSDC is coordinating relocation planning with MTA-NYCT.

*National Fire Protection Association (NFPA) Standard 130: Standard for Fixed Guideway Transit and Passenger Rail Systems. At street level, the ventilation system would consist of grates located within the West 31st and West 33rd Street moats adjacent to the eastern portion of the Farley Complex and grates located in the sidewalks on West 31st and West 33rd Streets adjacent to the western portion of the Farley Complex (see Figure 1-5). It is currently anticipated that there would not be a need for above-grade ventilation structures.* This ventilation system is the same as what was assessed in the FEIS.

## **FARLEY COMPLEX—PHASE 2**

Phase 2 of the Project includes development of the Moynihan Station Train Hall and street-level portions of the station, activation of Platform 12 for passenger use, the non-station commercial development of the Farley Complex, and the development of a mixed-use building on the Development Transfer Site. Overall, the total Farley Complex program for the Project is the same as assessed in the 2006 FEIS: 1,408,350 square feet, consisting of a 300,000-square-foot station, 86,000 square feet of transit-related retail, up to 265,000 square feet of USPS space, 125,000 square feet of hotel space, 518,100 square feet of commercial retail, a 35,000-square-foot banqueting facility, approximately 50,000 square feet of common building areas, 24,000 square feet for loading docks and service areas, and a 5,000-square-foot hotel lobby.

For the Moynihan Station portion of Phase 2, there are two options: an Amtrak station and an open station without a primary rail occupant. Phase 2 of the Project is described in detail below.<sup>1</sup>

### **AMTRAK STATION OPTION**

#### *Moynihan Station*

The station design in the Amtrak Station Option is somewhat different from the station design examined in the 2006 FEIS, primarily because the primary occupant of Moynihan Station under this option would be Amtrak instead of NJT.<sup>2</sup> However, in terms of overall size and program elements, the Amtrak Station Option is similar to the 2006 plan. The Amtrak Station Option assumes that approximately 300,000 square feet of the Farley Complex would be used for an Amtrak station, although the station could also be utilized by LIRR and NJT customers. After completion of the 2006 FEIS, planning and design of the station continued, incorporating additional improvements into the project that included the West End Concourse expansion, the 33rd Street Connector (which links the Farley Building with the Eighth Avenue subway lines and Penn Station), and the reactivation of the former mail platform (Platform 12) for passenger use. The improved design of these facilities has been incorporated into the Amtrak Station Option (as well as into the second option, the Open Station Option). The Amtrak Station Option includes a full extension of the West End Concourse to the train shed's southern retaining wall

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<sup>1</sup> The descriptions of these options are intended to provide a thorough understanding of the various options under consideration. Some of that detail is not required in order to assess potential Project impacts. It should be noted that the design of the Project will be further refined prior to commencement of construction of Phase 2, and certain details are likely to change as a result of such design refinements.

<sup>2</sup> As a result, Amtrak may vacate certain space at the Penn Station Complex. The specific use of the vacated space would be determined by Amtrak and other railroad tenants and is not known at this time. Since the use of this space would likely involve railroad operations, transit-related retail, or a combination of such uses, the programming of this space is not expected to affect the assessment of environmental impacts set forth in this Technical Memorandum.

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beneath the Farley Complex, but does not provide connections to NJT Platforms 1 and 2, which had been assumed in the 2006 FEIS as part of NJT's capital program but is a separate action. See **Figures 1-3** through **1-7** for plans and sections of Moynihan Station under the Amtrak Station Option.

The new Moynihan Station, under the Amtrak Station Option, would include the following elements:

- New facilities for rail passengers. These include dedicated Amtrak ticketing, baggage, and waiting areas (including Club Acela), a Train Hall main concourse, and Intermodal Hall at street level (see **Figures 1-4** and **1-5**). The main concourse Train Hall would be a large public space created in the Farley Building to serve both as the main passenger waiting area and railroad station passenger concourse (see **Figure 1-6**). As shown on **Figure 1-4**, there would be more than fifteen vertical circulation elements providing access from the main concourse directly to the platform level. The layout of many of these spaces is different than what was assessed in the 2006 FEIS.
- New Intermodal Hall. As currently contemplated, the hall would be characterized by a glass and metal skylight and would create midblock entrances to the Farley Building from both West 33rd and West 31st Streets, with the primary entrance on West 33rd Street (see **Figures 1-5** and **1-7**). The footprint and roof of the Intermodal Hall are smaller and lower, respectively, than what was assessed in the 2006 FEIS.
- Similar to the 2006 FEIS, an approximately 30 percent increase in the combined total of passenger stairs, escalators, and elevators; an approximately 50 percent increase in passenger circulation space; and direct access to the platforms for all railroads, except Platforms 1 and 2. Variations on the passenger circulation elements of the station are still being studied and further refined. These variations are described and analyzed in Section 13, "Station Circulation Analysis" of this Technical Memorandum. The essential passenger circulation elements are similar to what were assessed in the 2006 FEIS.
- Dedicated drop-off lanes and curb cuts for taxi access located on the mid-block of West 33rd Street and/or West 31st Street. These features are the same as those that were assessed in the 2006 FEIS.
- Building systems and infrastructure improvements. The Amtrak Station Option includes upgrades to the building's mechanical systems to meet the needs of the new station and reconfigured facility. These improvements are similar to those assessed in the 2006 FEIS.
- Planned restoration program. The Amtrak Station Option includes a comprehensive exterior building restoration, with stonework and mortar cleaned and refurbished, and windows restored and replaced as necessary. This program is the same as what was assessed in the 2006 FEIS.
- A wide pedestrian corridor within the Farley Complex—along the alignment of West 32nd Street—that would provide pedestrian circulation on two levels between the Intermodal Hall and Ninth Avenue (see **Figures 1-4** and **1-5**). These corridor improvements are more extensive than the corridor improvements that were assessed in the 2006 FEIS.
- Approximately 86,000 square feet of transit-related retail and commercial space. This space is in addition to the approximately 300,000-square-foot train station and is the same as what was assessed in the 2006 FEIS.
- Mail truck access. The existing USPS loading docks on the exterior of the building would be removed and modern loading facilities for USPS and Amtrak would be constructed inside

the Western Annex at the same street level location (see **Figure 1-5**). The loading area would be accessible from West 31st Street. This loading configuration is different than what was assessed in the 2006 FEIS.

- Activation and renovation of Platform 12 and the two adjacent tracks beneath the Farley Building, which have never been used for passenger service and would accommodate additional Amtrak Empire Service trains, and potentially Metro-North Hudson Line service.<sup>1</sup> This includes new track connections from the Empire tunnel to the Platform 12 tracks and is a new feature of the Project that was not assessed in the 2006 FEIS.
- Potential new baggage handling corridor to be constructed at the far west end of the station, to facilitate Amtrak baggage handling and movements. This is a new feature of the Project that was not assessed in the 2006 FEIS.

#### *USPS Facilities*

Up to 265,000 square feet of the Farley Complex has been leased to USPS for continued use, including the historic postal lobby and upper floor offices in the Farley Building, carrier space in the Western Annex, and a small area for postal facilities below the Western Annex. This program is the same as that assessed in the 2006 FEIS.

#### *Non-Station Commercial Development*

Within the Farley Complex, the non-station development portion of the Amtrak Station Option would include retail, banquet facility, and hotel space, the same as what was assessed in the 2006 FEIS. A mix of commercial uses would be developed in the Western Annex and could include large-scale retail anchors ranging from full-floor to two-floor users, as well as smaller category retail businesses, accessible from the ground and second floors of the 32nd Street corridor. In the Farley Building, it is expected that hotel and banquet facilities would occupy the upper floors. In total, the retail use would be 518,100 square feet, hotel use would be 125,000 square feet, or 125 rooms, and banquet facilities would be 35,000 square feet, as was assessed in the 2006 FEIS.

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<sup>1</sup> NJT has raised certain operational concerns with respect to the activation of the Diagonal Platform, since activation of that platform has the potential to interfere with NJT's use of certain stub tracks, which it currently uses for daytime storage of three to four NJT trains, and/or with access to station Tracks 1, 2, 3 and 4, which are used in daily NJT commuter operations. ESDC commits to the preparation of assessments, either as part of the ongoing Penn Station Operations Capacity Study being undertaken by MTA with oversight by a Technical Advisory Committee comprised of the MTA, Amtrak, NJT, LIRR and Metro-North Railroad, or as a separate study with the participation of all members of such Committee, to: (i) determine whether the activation of the Diagonal Platform would interfere with NJT's usage of such stub tracks for storage and/or with its access to station Tracks 1, 2, 3, or 4, and (ii) if it is determined that interference would occur, identify appropriate strategies to address such issues in a manner that is acceptable to NJT and any other affected operating railroad. No contract will be funded or executed by MSDC or ESDC for the activation of the Diagonal Platform until (a) the study referenced above has been completed, and (b) appropriate strategies identified in such study have been accepted by NJT and any other affected operating railroads. In addition, ESDC and MSDC will not activate or fund any contract that would result in the activation of the Diagonal Platform until such strategies have been fully implemented. Therefore, no significant disruption of service is expected.

### *OPEN STATION OPTION*

Like the Amtrak Station Option, the Open Station Option is similar in terms of overall size and program elements to the station examined in the 2006 FEIS. It is also similar in overall design to the Amtrak Station Option, and also includes the following elements described above: new facilities for rail passengers; new Intermodal Hall; an approximately 30 percent increase in the combined total of passenger stairs, escalators, and elevators, an approximately 50 percent increase in passenger circulation space, and direct access to the platforms for all railroads; dedicated drop-off lanes and curb cuts for taxi access; buildings systems and infrastructure improvements; a planned restoration program; a wide pedestrian corridor within the Farley Complex along West 32nd Street; approximately 86,000 square feet of transit-related retail and commercial space; mail truck access; and activation and renovation of Platform 12 and the two adjacent tracks.

The Open Station Option is described below in terms of differences with the Amtrak Station Option. **Figures 1-8** through **1-10** show the lower concourse, main concourse, and street level floor plans for the Open Station Option.

### *Moynihan Station*

Constructed under Phase 1 of the Project, the West End Concourse would be the same under either the Amtrak Station or Open Station Options. The one difference between the two options would be that the Open Station Option would not include a baggage handling corridor west of the West End Concourse, but like the 2006 plan there would be an emergency access corridor. At the postal lobby level, this option, unlike the Amtrak Station Option, is assumed to have a southern pedestrian passageway between the USPS retail lobby on Eighth Avenue and the Intermodal Hall, which was contemplated in the 2006 FEIS. On the main concourse level, there are differences in floorplan and space allocations between the Open Station and Amtrak Station Options. Waiting areas, retail spaces, station services, and railroad back-of-house areas would be laid out differently under the Open Station Option.

### *USPS Facilities*

The program for the USPS facilities would be similar under the Open Station Option to that under the Amtrak Station Option and to that assessed in the 2006 FEIS. There are two differences in the plan of the USPS facilities in the Open Station Option, as compared to the Amtrak Station Option. Under the Amtrak Station Option, the USPS museum, store, and P.O. boxes would be located at the south end of the USPS retail lobby. Under the Open Station Option, the store and P.O. Boxes would be located along the passageway on the north side of the train hall between the USPS retail lobby and the Intermodal Hall. The museum would be relocated to the south passageway. Under the Amtrak Station Option, the north passageway would be lined by retail space.

In addition, the Open Station Option includes, along with retail and station services, significantly more USPS space and a shared loading area on the main concourse level of the Western Annex in keeping with the design assessed in the 2006 FEIS. There would be a vehicular ramp from West 31st Street to the below-grade loading area, as assessed in the 2006 FEIS. In comparison, under the Amtrak Station Option the main concourse level of the Western Annex would include retail, station and building services, some USPS space, and the lower level of the West 32nd Street pedestrian corridor, while the loading area would be located at street level on West 31st Street in the location of the existing loading docks. The total program amounts of USPS space

and non-station commercial space would be the same under the Open Station and Amtrak Station Options, although the location of more USPS space on the main concourse level in the Open Station Option would result in a different allocation of those program elements on the street level and upper floor levels of the Farley Complex.

#### *Non-Station Commercial Development*

The non-station commercial development portion of the Open Station Option would include retail, banquet facility, and hotel space, like the Amtrak Station Option. In total, it would also include 518,100 square feet of retail use, 125,000 square feet of hotel use, or 125 rooms, and 35,000 square feet of banquet space. However, there would be some minor differences in the layout of retail spaces on the street and concourse levels, a slightly different configuration of the retail entrances on West 31st and West 33rd Streets, and a different configuration of escalators in the West 32nd Street corridor. In addition, under the Open Station Option, there would be only one level of the 32nd Street corridor between the Intermodal Hall and Ninth Avenue on the street level.

### **DEVELOPMENT TRANSFER SITE**

The Project, under either the Amtrak Station or Open Station Options, assumes that the Development Transfer Site on the western end of the One Penn Plaza block, fronting the east side of Eighth Avenue between West 33rd and West 34th Streets, would utilize approximately 1 million square feet of the Farley Complex's unused development rights, as was assessed in one of the 2006 FEIS scenarios. Under this development, a mixed-use building of up to 1.1 million gross square feet would be constructed. As currently contemplated, this building would be massed with several sections of varying heights, the tallest of which would be approximately 700 feet tall. Two options are contemplated for the Development Transfer Site building—a primarily residential building that would have approximately 940 units (940,000 square feet) and 120,000 square feet of retail space and a mixed-use option that would contain a 310,000-square-foot hotel, 630 residential units (630,000 square feet), and 120,000 square feet of retail space. These options are the same as were assessed in the 2006 FEIS. Either building is assumed to contain twenty percent of the residential rental units developed with affordable rental units provided under the 80/20 affordable housing program.

The Phase 1 transportation improvements described above do not assume development of the Development Transfer Site as part of Phase 1. However, it is possible that the project sponsor or designated developer may seek to advance development of the Development Transfer Site prior to commencement of the Phase 2 transportation improvements. Since this Technical Memorandum assesses all Project components for a 2015 Build year, the environment impact conclusions presented in this Technical Memorandum do not change if the Development Transfer Site is developed as part of Phase 1 instead of Phase 2.

### **D. PUBLIC SAFETY**

This section identifies the safety and security considerations related to the design and operation of the Project and it describes in general terms the safety procedures and security systems that would be implemented to protect rail employees, passengers, and the general public. Moynihan Station would be designed, built, and operated to comply with all relevant federal, state, and local safety regulations, including: the New York State Uniform Fire Prevention and Building

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Code; New York City Fire Department (FDNY) regulations; Americans with Disabilities Act (ADA) regulations; and Occupational Safety and Health Administration (OSHA) regulations.

The Project would create a safe and efficient intermodal transportation facility at the Farley Complex. It has been designed to help ease congestion of rail traffic, redirect pedestrian movements in the vicinity of the Penn Station Complex, and reduce overcrowding and conflicting movements of intercity and commuter rail users within the passenger terminal and connecting passages. Specifically, the Project would widen and improve the existing underground connection between the Farley Complex, the Eighth Avenue subway, and Penn Station so as to be ADA compliant. The Project would provide state-of-the art emergency platform ventilation and security and emergency egress. Moynihan Station would include critical design elements and features that would adhere, to the extent practicable, to guidelines established by the National Fire Protection Association (NFPA) *Standard 130: Standard for Fixed Guideway Transit and Passenger Rail Systems*. The proposed project would provide approximately 30 new vertical access points (stairs, escalators, and elevators) within Moynihan Station connecting its concourses to train platforms. These new vertical access points would provide access from the Farley Complex to and from platforms, resulting in additional passenger access/egress and circulation space that would relieve congestion at platform and concourse levels in the Penn Station Complex. In particular, with the Project, egress times from most platforms would be greatly improved.

Arrangements would be made among MSDC, PANYNJ, and the operating railroads for police services. Police forces in Moynihan Station would participate in the New York City Joint Terrorism Infrastructure Task Force, which also includes FDNY, the Federal Bureau of Investigation, and the U.S. Department of Homeland Security, as well as other federal, State, and City agencies and organizations. Through this task force, and by using outside security experts, the MTA police and the New York City Police Department (NYPD) are at the forefront of developing strategies to strengthen protections against terrorist threats at New York City's transportation facilities. A Terrorism and Risk Assessment would be updated in connection with the design work for Moynihan Station and the NYPD anti-terrorism task force would be consulted regarding the station design.

A safety and security management plan would be developed and integrated, to the extent appropriate, with existing security arrangements at Penn Station. Standard electronic security systems (e.g., security cameras to monitor security-sensitive areas) would be incorporated into the design of Moynihan Station as determined necessary by security planning protocols.

The Development Transfer Site building would comply with local code requirements, including fire and building codes, as applicable. It is expected that the Development Transfer Site building would implement its own site security plan, which would include measures such as the deployment of security staff and monitoring and screening procedures.

## **E. SUMMARY OF GENERAL PROJECT PLAN MODIFICATIONS**

As stated above, ESDC affirmed a GPP for the Farley/Moynihan project in August 2006. Since that time, MSDC, after consultation with project constituents, has been considering proposed Project modifications as set forth above and such modifications would be reflected in an amended GPP. These GPP modifications would include, but not be limited to: (1) identifying Amtrak as a potential anchor rail occupant with approximately 100,000 square feet of station programming included in the approximately 300,000 square feet of new station area; (2)

differentiating the station-related elements of the Project into Phase 1 (primarily below grade transportation elements) and Phase 2 (primarily train hall elements); (3) activating the diagonal mail platform (Platform 12); and (4) a revised funding structure required to accomplish the Project. The modified GPP may also allow ESDC to grant to the private developer the option to redevelop the Western Annex and the Development Transfer Site for the purposes described in the 2006 GPP. It is anticipated that requisite review and approval of this Technical Memorandum would occur in conjunction with the affirmation of an amended Project GPP. \*



**A. INTRODUCTION**

This Technical Memorandum assesses the potential environmental consequences of the proposed Project relative to the environmental impacts disclosed in the 2006 FEIS for the Project that provided the basis for a SEQRA Findings Statement issued by ESDC on August 14, 2006. As noted in Section 1, “Project Description,” specific changes and refinements have been proposed to the Project regarding station design, rail occupancy, and other program elements. In addition, this Technical Memorandum assesses the effects of the change to the anticipated year of completion for the Project from 2010 to 2015 by evaluating changes to background conditions that have taken place since completion of the 2006 FEIS and the changes to development trends in the vicinity of the Project site that could affect the impact assessments.

This section of the Technical Memorandum summarizes the status of the environmental review process, presents the approach and framework of the comparative environmental assessment, and describes background conditions in terms of projects likely to be completed by the 2015 No Build condition.

**B. STATUS OF ENVIRONMENTAL REVIEW PROCESS**

This Technical Memorandum has been prepared in order to determine if the project modifications and changes in background conditions and other new information would give rise to significant environmental impacts not adequately considered in the 2006 FEIS.

In addition, since the Moynihan Station Development Project continues to incorporate federal funding, involved federal agencies must comply with the National Environmental Policy Act (NEPA). Since approval of the GPP in 2006, the USPS completed an Environmental Assessment (EA) and issued a Finding of No Significant Impact (FONSI) in 2006 under NEPA. Issuance of the FONSI allowed the USPS to transfer ownership of the Farley Complex to ESDC, which occurred on March 30, 2007. As a result, the primary future actions involving federal agencies are related to funding, and the Federal Railroad Administration (FRA) is acting as lead agency for the NEPA review. In parallel with this Technical Memorandum, a new EA has been prepared to provide FRA and other federal agencies with an updated assessment of the modified Project under NEPA.

**REQUIRED APPROVALS/LIST OF PRINCIPAL ACTIONS**

The current Project has a more limited set of required actions than the Project assessed in 2006, primarily because the title to the property has been transferred. The following actions by ESDC and MSDC, however, are still necessary for project implementation:

- Adopt and affirm one or more modifications to the GPP reflecting the proposed changes to the Project.

- Enter into a series of real estate transactions involving leases or other real estate instruments for the use of the new train station by Amtrak or others, and with the conditionally designated developer, a joint venture of the Related Companies and Vornado Realty Trust (the Venture), or others regarding Project construction and the non-station development in the Farley Complex and on the Development Transfer Site.

In addition, the New York State Department of Transportation is expected to undertake certain actions related to securing federal funding.

### **ONGOING COORDINATION OF STATION PLANNING AND DESIGN**

In addition to conducting the SEQRA and NEPA environmental review processes, MSDC is continuing to coordinate with the railroads and other stakeholders in the planning and design of the station and key circulation elements. These ongoing design efforts, which are outside the requirements for SEQRA review in this Technical Memorandum, include analyzing station circulation with a longer-term horizon year analysis with an at-capacity station utilization and a larger and long-range estimate in background growth in order to optimize the design of the Project. In addition, MSDC is coordinating with other large-scale transportation projects—most notably NJT’s ARC project, as well as the potential to bring Metro-North Hudson Line Service to the Penn Station Complex—that are expected to be completed after the Project but need to be integrated into a comprehensive construction management plan, including the coordination of construction schedules, and overall access to, and circulation within, the Penn Station Complex.

## **C. FRAMEWORK FOR ENVIRONMENTAL ANALYSES**

### **SCOPE OF THE ENVIRONMENTAL ANALYSES**

The organization of this Technical Memorandum follows that of the 2006 FEIS and includes all the key technical chapters contained in the FEIS with the exception of Alternatives, which do not require further analysis. The prior environmental findings are evaluated and assessed based on updated analyses relating to changes in background conditions and changes resulting from project-specific modifications. Like the FEIS, this document generally builds on methodologies and guidelines set forth in the *CEQR Technical Manual*, which are considered to be the most appropriate technical analysis methods and guidelines for the environmental impact assessment of projects in New York City and are consistent with SEQRA. In addition, to incorporate station planning refinements and analyses conducted subsequent to completion of the 2006 FEIS, this Technical Memorandum also includes new information regarding the assessment of internal station circulation (see Section 13, “Station Circulation”) and public safety (see Section 1, “Project Description”).

As described below, this Technical Memorandum summarizes findings of the technical analyses relative to the 2006 FEIS based on either changes in background conditions or changes in the Project design. Since the analysis in Section 13 (“Station Circulation”) of this Technical Memorandum presents new information that was not included in the 2006 FEIS, it does not follow the format of the other Technical Memorandum sections but includes a more complete presentation of methodology, existing conditions, and future conditions with and without the Project.

### **CHANGES IN BACKGROUND CONDITIONS**

The standard methodology for conducting an environmental assessment involves analyzing the incremental change generated by a proposed action compared with a future baseline or

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background condition, often referred to as the “No Action” or “No Build Condition.” For the proposed Moynihan Station Development Project, this future baseline condition has changed from that examined in the 2006 FEIS. Changes include a revised assumption of what would occur on the project site itself if the station is not built, a new expected year of project completion of 2015, and a revised list of development projects that are assumed to be completed in and around the Farley Complex by 2015.

### *FARLEY COMPLEX PROJECT SITE*

Since USPS no longer owns the Farley Complex, if the Project does not go forward, it is assumed that USPS would not reoccupy more floor space than the 265,000 square feet that was committed to USPS use under the long-term lease entered into with USPS at the time ESDC took title to the Farley Complex. As a result, it is assumed that the Farley Complex would contain more commercial use in the No Build condition than was assumed in the 2006 FEIS (see **Table 2-1**). In addition, it is assumed that in the future without the Project there would be no utilization of development rights and the Development Transfer Site would remain in its current condition.

**Table 2-1**  
**Comparison of Farley Complex Land Use**  
**Components: No Action**  
**2006 FEIS and 2010**  
**Technical Memorandum (in square feet)**

Land Use Component	No Action 2006 FEIS	No Action 2010 Tech Memo
Train Station	0	0
Transit Retail	0	0
USPS	650,100	265,000
Commercial Office	436,000	551,000
Hotel*	0	0
Commercial Retail	248,000	518,100
Entertainment Retail	0	0
Merchandise Mart	0	0
Banquet Facilities	0	0
Common Areas	50,250	50,250
Docks/Service	24,000	24,000
<b>Total</b>	<b>1,408,350</b>	<b>1,408,350</b>
<b>Notes:</b> * Divide by 1,000 to estimate approximate number of hotel rooms.		

### *2015 NO BUILD PROJECTS*

The 2015 No Build condition is based on existing conditions and changes expected to occur in the relevant study areas surrounding the Farley Complex, most notably including projects currently under construction or projects that can reasonably be expected to be constructed, because of their current level of planning and public approvals. Future development projects that have been announced, are in an approval process, or are under construction and likely to be built by 2015, along with proposals for rezoning and public policy initiatives likely to be undertaken by 2015, are presented in **Table 2-2** and shown on **Figure 2-1**. These No Build projects represent a total of approximately 17.6 million gross square feet (gsf) of new development, including: 4.9 million gsf of new office space, 823,636 gsf of new retail space, 198,726 gsf of new community facility space, 11,874 new residential units, and 2,823 new hotel rooms.

## Section 2: Analytical Framework

**Table 2-2**  
**Development Under Construction or Proposed**  
**Expected to Be Completed in the 2015 No Build Analysis Year**

Map #	Site Description	Land Use Category in Gross Square Feet							
		Office	Hotel	Hotel Rooms	Retail	Residential Units	Community Facility	Parking	Other/ Comments
1	Jacob K. Javits Convention Center Expansion								100,000 sf expansion: 40,000 sf exhibition space and 60,000 sf support
3	316 Eleventh Avenue (east side) between W. 29th and W. 30th Streets (Block 701, Lots 62, 68, and 70)				4,820	365			
5	Hudson Park and Boulevard: W. 33rd to W. 36th Streets								Open Space: 2.12 acres
6	Related Companies: midblock on south side W. 30th Street between Tenth and Eleventh Avenues (Block 701, Lots 52, 55, 56, 58, 16, partial 45)				25,000	368		40,250 sf	
7	Related Companies: southwest corner of Tenth Avenue and W. 30th Street (Block 701, Lots 30, 33, 36, 37, 42, 43, partial 45)				30,000	382		23,000 sf	
8	Avalon Bay Properties: Eleventh Avenue at W. 28th Street, northeast corner (Block 700, Lots 1, 9, 18)					600			
9	Taxi Garage Site: Tenth Avenue between W. 28th and W. 29th Streets (Block 700, Lots 27, 42, 44, 45, 32, 34, 38)		38,850	78		46			
10	Extell Development - Hudson Yards Potential Site 62: east side Tenth Avenue between W. 31st and W. 30th Streets		235,750	472		220			
11	Rockrose - Hudson Yards Site 11: west side of Tenth Avenue between W. 37th and W. 38th Streets				65,320	855			
15	Cambria Suites Madison Square Garden Hotel: 325 West 33rd Street - north side between Eighth and Ninth Avenues		200,760	239					
17	River Place II: Eleventh Avenue between W. 41st and W. 42nd Streets					1,349			
18	Moinian Group - Hudson Yards Site 18: south side of W. 43rd Street between Eleventh and Twelfth Avenues				37,950	1,000			2 buildings

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**Table 2-2 (cont'd)**  
**Development Under Construction or Proposed**  
**Expected to Be Completed in the 2015 No Build Analysis Year**

Map #	Site Description	Land Use Category in Gross Square Feet							
		Office	Hotel	Hotel Rooms	Retail	Residential Units	Community Facility	Parking	Other/ Comments
19	Related Companies - Hudson Yards Site 19, Theater Row II: east side of Tenth Avenue between W. 41st and W. 42nd Streets		230,000	250	12,500	774		360 parking spaces	50,000 sf Equinox 70,000 sf theater
20	515 West 41st Street				28,580	333			
21	Port Authority Bus Terminal (PABT) office tower: west side of Eighth Avenue between W. 42nd and W. 41st Streets	1,300,000							Improvements to bus operations at PABT
22	11 Times Square, W 42nd Street and Eighth Avenue	938,950			49,420				
23	Rockrose - Hudson Yards Site 23: east side of Tenth Avenue between W. 37th and W. 38th Streets				20,900	388			
25	345 W. 35th Street between Eighth and Ninth Avenues		100,500	200					
26	Tower 37: LLC south side of W. 37th Street, near Ninth Avenue (Block 760, Lots 10, 67, 68)					208			
27	Wyndham Garden Inn, Metropolis Group: 339 W. 36th Street		188,160	224					Open Space: 3,660 sf
29	Glenwood Management - 310-328 W. 38th Street: midblock on W. 37th and W. 38th Streets between Eighth and Ninth Avenues				10,600	569			
30	307-311 W. 37th Street (north side W. 37th Street near Eighth Avenue)		93,319	187					
31	Sam Chang Hotels: 585 Eighth Avenue		82,906	169					
33	Bush Tower Annex: 140 W. 42nd Street	140,000							
34	Fairfield Inn and Four Points Hotel: 340-342 W. 40th Street		420,000	500					
35	Mehta Family, Staybridge Suites Times Square: 334 W. 40th Street		260,400	310					
36	Sam Chang - Hudson Yards Potential Sites 68,70: mid-block bounded by W. 39th and W. 40th Streets, Eighth and Ninth Avenues (five budget hotel properties, total 1,061 rooms)		891,240	1,061					
37	Hudson Yards Site 37: midblock on W. 38th and W. 39th Streets between Eighth and Ninth Avenues (Block 762, lot 6)	381,990			8,520				

## Section 2: Analytical Framework

**Table 2-2 (cont'd)**  
**Development Under Construction or Proposed**  
**Expected to Be Completed in the 2015 No Build Analysis Year**

Map #	Site Description	Land Use Category in Gross Square Feet							
		Office	Hotel	Hotel Rooms	Retail	Residential Units	Community Facility	Parking	Other/ Comments
38	Majestic Hotel Corp, Strand Hotel: 33 W. 37th Street,		149,520	178					
39	Hotel Pennsylvania: 15 Penn Plaza, Seventh Avenue between W. 32nd and W. 33rd Streets	1,819,004	-1,213,320	-1,700	181,520				Trading Floor Use: 228,114 sf Mechanical Space: 312,623 sf Lobby, Amenity Space, Service, Loading Areas: 109,420 sf
40	885 Sixth Avenue and W. 32nd St	21,500			25,600	338			
41	855 Sixth Avenue, west side between W. 30th and W. 31st Streets				38,468	433			
42	835 Sixth Avenue, west side between W. 29th and W. 30th Streets		290,000	290	26,368	302			
43	REMY: 815 Sixth Avenue at W. 28th Street				59,000	269			
44	145 W. 27 Street, north side, midblock between Sixth and Seventh Avenues				1,029	11			
45	101 W. 24th Street (735 Sixth Avenue)				16,000	199			
46	124 W. 24th Street, south side, midblock between Sixth and Seventh Avenues				1,965	21			
47	133 W. 22nd Street, between Sixth and Seventh Avenues				2,211	89			
48	241-53 W. 28th Street	227,730			11,990				
49	261 W. 28th Street, north side, midblock between Seventh and Eighth Avenues				5,145	55			
50	Savanna REF: 415 Eighth Avenue at southwest corner of W. 31st Street (Block 754 Lot 44)				10,000	106			
51	Hudson River Park, portions of Segment 5								Parkland: 9.2 acres
52	West Chelsea Projected Site 4: 547-59 W. 27th Street (Block 699, Lot 5)				15,548	118			Conversion of existing building
53	West Chelsea Projected Site 5: 507-17 W. 27th Street (Block 699, Lots 9, 22-27, 44)				39,976	283			
54	West Chelsea Projected Site 6: 299-311 Tenth Avenue (Block 699, Lots 29, 31-33, 37)				28,637	159			

# Moynihan Station Development Project Technical Memorandum

**Table 2-2 (cont'd)**  
**Development Under Construction or Proposed**  
**Expected to Be Completed in the 2015 No Build Analysis Year**

Map #	Site Description	Land Use Category in Gross Square Feet							
		Office	Hotel	Hotel Rooms	Retail	Residential Units	Community Facility	Parking	Other/ Comments
55	Otis Elevator Building: 550 - 558 W. 27th Street (Block 698, Lot 1)	57,500							
56	520 W. 27th Street, south side, midblock between Tenth and Eleventh Avenues	43,400							
57	Spindler Site: W. 26th Street and Tenth Avenue (Block 698, Lots 28, 32)		26,250	53		31			
58	West Chelsea Projected Site 9: 507 W. 25th Street (Block 697, Lots 27 and 31)				8,888	175			
59	420 W. 25th Street, south side, midblock between Ninth and Tenth Avenues				7,110	76			
60	West Chelsea Projected Site 10: 550 W. 25th Street (Block 696, Lot 58)						110,598		
61	245 Tenth Avenue					18			
62	High Line 519: 519 W. 23rd Street, north side, midblock between Tenth and Eleventh Avenues					11			
63	200 Eleventh Avenue					16			
64	552 W. 24th Street					15			
65	HL 23: W. 23rd Street					11			
66	10 Chelsea: 500 W. 23rd Street					68			
67	Time Warner Garage site: W. 21st Street/W. 22nd Street (Block 693, Lot 23)		155,925	312					
68	High Line Open Space								Open space: 4.41 acres
69	West Chelsea Projected Site 13: 550 W. 21st Street (Block 692, Lots 7, 61, 63)				7,331	133			
70	West Chelsea Projected Site 14: 540-542 W. 21st Street (Block 692, Lots 53, 57)						88,128		
71	West Chelsea Projected Site 15: 521-527 W. 20th Street (Block 692, Lots 28, 30)				43,240	87			
72	Nouvel on W. 19th Street: W. 19th Street and Eleventh Avenue					72			
73	Metal Shutter Houses: W. 19th Street					9			
74	520 West Chelsea: 520 W. 19th Street					26			

**Table 2-2 (cont'd)**  
**Development Under Construction or Proposed**  
**Expected to Be Completed in the 2015 No Build Analysis Year**

Map #	Site Description	Land Use Category in Gross Square Feet							
		Office	Hotel	Hotel Rooms	Retail	Residential Units	Community Facility	Parking	Other/ Comments
75	High Line Bonus Site C: West Chelsea Subarea G, Tenth Avenue between W. 18th and W. 19th Streets					341			
76	High Line Bonus Site B: West Chelsea Subarea H (Block 689, Lot 17)					945			
S	No. 7 Subway Line Station at Eleventh Avenue and West 34th Street								New terminal subway station
	Total	4,930,074	2,150,260	2,823	823,636	11,874 [9,499,200 sf] <sup>1</sup>	198,726		

**Note:** See Figure 2-1.

1. Based on an average residential unit size of 800 gross square feet.

The 2006 FEIS analyzed future No Build conditions in 2010 (when the Project was expected to be completed at the time the FEIS was prepared); given the current economic climate, there is a relatively modest change in the amount of expected development in the 2015 analysis year considered in this Technical Memorandum compared with the prior estimate for 2010 in the 2006 FEIS. The 2010 future conditions included approximately 28 No Build projects including: 6.1 million gsf of new office space; 603,492 million gsf of new retail space; 330,260 gsf of new community facility space; 9,084 new residential units; and 1,600 new hotel rooms (see **Table 2-3**). Many of the developments listed in **Table 2-2** were also identified in the 2006 FEIS for future conditions in 2010. Since publication of the 2006 FEIS, several projects identified for future conditions in 2010 have been completed and are currently built and fully occupied. Other projects have changed in the amount and type of development expected and/or the expected year of completion. For example, the construction schedules for some projects have been delayed until after 2015 and are therefore no longer listed. Also listed in **Table 2-2** are new projects that were not originally identified in the 2006 FEIS for future conditions in 2010. Overall, the total development for future conditions in 2015 (as analyzed in this Technical Memorandum) is similar to the total development for future conditions in 2010 (as analyzed in the 2006 FEIS) but with a smaller amount of office and community facility development and more hotel, residential, and retail development (see **Table 2-3**).

**Table 2-3**  
**2015 No Build Conditions in the Technical Memorandum**  
**Compared to 2010 No Build Conditions in the 2006 FEIS**

No Build Conditions	Office Floor Area (gsf)	Hotel Rooms	Retail Floor Area (gsf)	Residential Units	Community Facility Floor Area (gsf)
<b>2006 FEIS 2010 No Build Conditions</b>	6,136,686	1,600	603,492	9,084	330,259
<b>2006 FEIS 2010 No Build Conditions: Built Projects</b>	-2,745,376	-100	-182,801	-2,879	-46,000
<b>2015 No Build Conditions: New Projects Since 2006 FEIS</b>	3,368,234	2,130	512,626	6,667	
<b>2006 FEIS 2010 No Build Conditions: Changes to Projects</b>	-1,829,470	-807	-109,681	-998	-85,533
<b>2015 No Build Conditions (Total)</b>	4,930,074	2,823	823,636	11,874	198,726
<b>Comparison 2015 No Build to 2010 No Build in 2006 FEIS</b>	-1,206,612	1,223	220,144	2,790	-131,533



### 34TH STREET BUS RAPID TRANSITWAY

Since the Draft Technical Memorandum was completed, NYCDOT announced a proposal for the construction of a new right-of-way for cross-town bus service along 34th Street. The 34th Street Bus Rapid Transitway (Transitway) project envisions the construction of a physically separate right-of-way for buses on 34th Street, as well as passenger boarding islands, implementation of a prepayment fare system, and other bus operations improvements. The Transitway would feature a select bus service route between the Javits Convention Center (West 34th Street between 11th and 12th Avenues) and the East 34th Street ferry landing, along 34th Street. The Transitway would be used by existing and expanded express bus routes from Brooklyn, Queens, Staten Island, and New Jersey, buses connecting to the Pier 79/West 39th Street ferry terminal, and other local buses. The Transitway would also create a new pedestrian plaza in the middle of Manhattan and other pedestrian mobility, safety, and comfort enhancements along the corridor.

Although several of the details concerning the design of the Transitway proposal have yet to be finalized, and may change in the coming months, as currently proposed, the Transitway would consist of a two lane, bi-directional bus lane aligned against one curb of the street. The remainder of the street would be used for one-way traffic, running outbound from midtown: westbound from Sixth Avenue, and eastbound from Fifth Avenue. Between Fifth and Sixth Avenues, buses would be the only through traffic allowed, with the remainder of the space devoted to new pedestrian spaces. Loading zones and parking would be available along at least one side of each block of the Transitway at all times.

The Transitway is proposed to be completed by late 2013 or early 2014. It requires various City and State approvals and full implementation of the project as currently proposed will require funding from the Federal Transit Administration. The Transitway project also must undergo environmental review pursuant to the State Environmental Quality Review Act and the National Environmental Policy Act. The scope of work for these environmental studies has not been determined and a public scoping process will be undertaken. It is assumed that a comprehensive traffic impact analysis will be included in the scope of work for the 34th Street Transitway environmental assessment.

While the general goals and outlines of the Transitway have been identified, many of the specifics of the Transitway's operational characteristics have yet to be finalized. For example, NYCDOT has not designated preferred traffic diversion routes or truck circulation routes. Signal timing changes have yet to be identified. Curbside regulations and turn restrictions associated with the Transitway also have not been finalized. These as yet undetermined conditions will have a substantial effect on how traffic will move through the study area. Moreover, the public review processes and environmental review required for the Transitway could result in modifications to the project as currently envisioned. Accordingly, it is not possible at this time to conduct a quantitative analysis that would accurately reflect traffic conditions in the study area with the Project if the Transitway is implemented. It is anticipated that additional traffic will be diverted to parallel streets in the area as a result of any changes NYCDOT makes to traffic operations on 34th Street. Any necessary resulting changes to the traffic network will be monitored and implemented by NYCDOT.

### **PROJECT DESIGN CHANGES**

Since the core program elements of the current Project are basically unchanged from the Project as assessed in the 2006 FEIS, the following changes are considered for their potential to cause

significant environmental effects not addressed in the 2006 FEIS (see the more detailed description in Section 1, “Project Description).”

*FARLEY COMPLEX—PHASE 1*

- Revised pedestrian circulation elements associated with the West End Concourse, the 33rd Street Connector, and other vertical circulation refinements.

*FARLEY COMPLEX—PHASE 2*

- New station operation options.<sup>1</sup>
  - Amtrak Station Option: Amtrak as primary occupant in Moynihan Station and ground-floor retail on lower level of the Western Annex.
  - Open Station Option: open station with no primary rail occupant and USPS retaining lower-level parking and loading in the Western Annex.
- Renovation and utilization of Platform 12 for passenger railroad service.
- Revised pedestrian circulation elements as set forth in Phase 1 as well as new platform vertical circulation associated with the new station.
- Revised design for the Intermodal Hall and for the roofs over both the Train Hall and Intermodal Hall.

This Technical Memorandum does not consider project elements analyzed in the 2006 FEIS that are no longer part of the current Project. Specifically, the development of an office building overbuild on the Farley Complex is no longer being considered as an option for the utilization of the Farley Complex’s unused development rights, nor is an arena option in the Western Annex under possible consideration. \*

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<sup>1</sup> In each of the station options, it is assumed that USPS would retain 265,000 square feet of space, although in the Amtrak Station Option it is specifically assumed that space would be elsewhere in the Farley Complex and not on the lower level of the Western Annex.

**A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to land use, zoning, and/or public policy that were not previously identified in the 2006 FEIS. The regulatory context and methodology for this analysis are the same as described in the 2006 FEIS.

**B. CHANGES IN BACKGROUND CONDITIONS**

As discussed in Section 2, “Analytical Framework,” in connection with the preparation of this Technical Memorandum background conditions and the status of development projects anticipated for completion through 2015 have been updated for the FEIS study area.

Updates to the No Build list were made through review of New York City Department of Buildings permits, identification of construction sites, and review of No Build lists for other projects. The updated No Build list includes projects that were planned prior to the current economic slowdown. Although some of these projects are now on hold, they are assumed to still be moving forward in the future when market conditions improve. Therefore, since projects were not removed, this list is conservatively inclusive. Since the FEIS was completed in 2006, some development projects have been completed in the surrounding area and are currently built and fully occupied. Other projects have changed in the amount and type of development expected and/or the expected year of completion, and some new projects are under development or are proposed.

The 2010 future conditions included approximately 28 No Build projects including: 6.1 million gsf of new office space; 603,492 gsf of new retail space; 330,260 gsf of new community facility space; 9,084 new residential units; and 1,600 new hotel rooms (see **Table 2-3**). In comparison, the 2015 future conditions assume: 4.9 million gsf of new office space; 823,636 gsf of new retail space; 198,726 gsf of new community facility space; 11,874 new residential units; and 2,823 new hotel rooms. As set forth in **Table 2-3**, the total development anticipated to be complete by the Project’s 2015 Build year is similar to the total development anticipated to have been completed by 2010 (as analyzed in the 2006 FEIS) but with a smaller amount of office and community facility development and slightly more hotel, residential, and retail development.

These changes to background conditions are modest in relation to the overall land use development anticipated within the study area, and notwithstanding these changes, the overall land use profile of the study area will remain the same as analyzed in the 2010 future conditions for the 2006 FEIS. In summary, changes in background conditions since 2006 and future conditions anticipated through 2015 would not substantially alter the conclusions presented in the FEIS for land use. Although there is more of a trend toward residential, hotel, and retail development than office uses— and although additional No Build projects have been added— the essential land use patterns within the study area have remained similar to what was expected in the FEIS.

In April 2007, subsequent to completion of the 2006 FEIS, the Mayor's Office of Long Term Planning and Sustainability released *PlaNYC: A Greener, Greater New York*. It includes policies to address three key challenges that the City faces over the next twenty years: (1) population growth; (2) aging infrastructure; and (3) global climate change. Elements of the plan are organized into six categories—land, water, transportation, energy, air quality, and climate change—with corresponding goals and objectives for each.

No significant changes to zoning or public policy are expected by 2015 for the project site, the Development Transfer Site, or study area.

## **C. PROJECT DESIGN CHANGES**

### **FARLEY COMPLEX—PHASE 1**

As described in Section 1, "Project Description," Phase 1 of the Project would consist of improvements to below-grade infrastructure. Above-grade work would be limited to two new Eighth Avenue entrances into the Farley Building. The design and configuration of these entrances would be the same as assessed in the 2006 FEIS.

#### *LAND USE*

The proposed below-grade changes for the Project would modify the Farley Building to accommodate the proposed passenger rail uses—as anticipated in the 2006 FEIS—although the configuration and design of these modifications would be somewhat different than previously analyzed. The proposed rail uses of the Farley Building would continue to be consistent with the surrounding uses in the area. The proposed below-grade changes to the Project do not include any changes to its proposed uses, and would not require any new structures or expansion of building floor area. Therefore, the proposed changes would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to land use.

#### *ZONING*

The proposed below-grade changes do not involve any changes to zoning, proposed use, or expansions of building floor area. Therefore, the proposed changes would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to zoning.

#### *PUBLIC POLICY*

The proposed below-grade changes would continue to be compatible with the goals of the 34th Street Partnership Business Improvement District, as the Project would continue to bring new activity to the Farley Complex block. The proposed changes would have no influence on the recommendations for zoning changes or projected development for Chelsea in the 197-a plan developed for this area. Therefore, the Project would continue to be compatible with these policies. The Project also would continue to be consistent with the public policy goal of federal, state, and city agencies to redevelop the Farley Complex as a safe, efficient, and contemporary intermodal transportation facility and commercial center to meet New York's future transportation needs. With the proposed changes, the Project would be compatible with the goals and initiatives of PlaNYC, by improving and capitalizing on transit access.

Therefore, the proposed changes would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to public policy.

## **FARLEY COMPLEX—PHASE 2**

### *AMTRAK STATION OPTION*

#### *Land Use*

The proposed changes under the Amtrak Station Option would not involve any alterations to the overall program of uses for the Project. The Project would continue to create a new public destination and activity at the Farley Complex, which would have the beneficial effect of providing improved opportunities to integrate activity with the surrounding land uses. In addition, the proposed rail uses would continue to be consistent with the surrounding uses in the area, and the proposed commercial retail facilities at the Farley Complex would help to generate more activity at the site and make the site more visible. Although the primary occupant of the station would change, as would some station design elements, these changes would not require any new structures or expansion of building floor area. Therefore, the proposed changes under the Amtrak Station Option would not change the FEIS conclusion that the Project would not result in significant adverse impacts with respect to land use.

#### *Zoning*

As described above and as discussed in the 2006 FEIS, to facilitate the use of the Farley Building for rail service, it is expected that ESDC would exercise its override power with respect to Section 74-62 of the Zoning Resolution of the City of New York. However, the Project would remain consistent with the substantive requirements of the Zoning Resolution of the City of New York for the construction of a railroad passenger station. The proposed changes to the Project do not involve any changes to zoning, proposed use, or expansions of building floor area. Therefore, the proposed changes under the Amtrak Station Option would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to zoning.

#### *Public Policy*

The Amtrak Station Option, like the Project as assessed in the 2006 FEIS, would be compatible with the goals of the 34th Street Partnership Business Improvement District, as the Project would continue to bring new activity to the Farley Complex block. The proposed changes would have no influence on the recommendations for zoning changes or projected development for Chelsea in the 197-a plan developed for this area. Therefore, the Project would continue to be compatible with these policies. The Project also would continue to be consistent with the public policy goal of federal, state, and city agencies to redevelop the Farley Complex as a safe, efficient, and contemporary intermodal transportation facility and commercial center to meet New York's future transportation needs. With the proposed changes, the Amtrak Station Option would be compatible with the goals and initiatives of PlaNYC, by improving and capitalizing on transit access. In addition, an analysis of the technical and economic feasibility of installing combined heat and power as part of any development on the Development Transfer Site would be undertaken in accordance with PlaNYC. Therefore, the proposed changes under the Amtrak Station Option would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to public policy.

### *OPEN STATION OPTION*

As described in Section 1, “Project Description,” the Open Station Option would be more similar in terms of station layout to the station design examined in the 2006 FEIS than would be the Amtrak Station Option.

#### *Land Use*

The Open Station Option, like the Amtrak Station Option, would not involve any alterations to the overall program of uses for the Project. Like the Amtrak Station Option and the project assessed in the 2006 FEIS, the Project would continue to create a new public destination and activity at the Farley Building, which would have the beneficial effect of providing improved opportunities to integrate activity with the surrounding land uses. In addition, the proposed rail uses would continue to be consistent with the surrounding uses in the area, and the proposed commercial retail facilities at the Farley Complex would help to generate more activity at the site and make the site more visible. Although some design and configuration elements would change, these changes would not require any new structures or expansion of building floor area. Therefore, the proposed changes under the Open Station Option would not change the FEIS conclusion that the Project would not result in significant adverse impacts with respect to land use.

#### *Zoning*

As described above and as discussed in the 2006 FEIS, to facilitate the use of the Farley Building for rail service, it is expected that ESDC would exercise its override power with respect to Section 74-62 of the Zoning Resolution of the City of New York. However, the Project would remain consistent with the substantive requirements of the New York City Zoning Resolution for the construction of a railroad passenger station. The proposed changes to the Project do not involve any changes to zoning, proposed use, or expansions of building floor area. Therefore, the proposed changes under the Open Station Option would not change the FEIS conclusion that the Project would not result in significant adverse impacts with respect to zoning.

#### *Public Policy*

The Open Station Option, like the Amtrak Station Option and the project assessed in the 2006 FEIS, would be compatible with the goals of the 34th Street Partnership Business Improvement District, as the Project would continue to bring new activity to the Farley Complex block. The proposed changes would have no influence on the recommendations for zoning changes or projected development for Chelsea in the 197-a plan developed for this area. Therefore, the Project would continue to be compatible with these policies. The Project also would continue to be consistent with the public policy goal of federal, state, and city agencies to redevelop the Farley Complex as a safe, efficient, and contemporary intermodal transportation facility and commercial center to meet New York’s future transportation needs. With the proposed changes, the Open Station Option would be compatible with the goals and initiatives of PlaNYC, by improving and capitalizing on transit access. In addition, an analysis of the technical and economic feasibility of installing combined heat and power as part of any development on the Development Transfer Site would be undertaken in accordance with PlaNYC. Therefore, the proposed changes under the Open Station Option would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to public policy. \*

**A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to socioeconomic conditions that were not previously identified in the 2006 FEIS. The regulatory context and methodology for this analysis are the same as described in the 2006 FEIS.

**B. CHANGES IN BACKGROUND CONDITIONS**

As discussed in Section 2, “Analytical Framework,” in connection with the preparation of this Technical Memorandum background conditions and the status of development projects anticipated for completion through 2015 have been updated for the FEIS study area. In comparison to the 2010 future conditions analyzed in the 2006 FEIS, the 2015 future conditions are anticipated to have approximately 1,206,612 square feet less office use, 1,223 additional hotel rooms, 2,790 additional residential units, 220,144 square feet additional retail use, and 131,533 square feet less community facility use. On the whole, a considerable amount of development is still expected on Manhattan’s west side by 2015; however, the current recession and other market considerations may affect the likelihood that all of this expected development would occur by the 2015 analysis year.

Within the specific study area for socioeconomic conditions, the 2015 No Build projects are more limited, with 17 projects that will add about 2.0 million square feet of office space, about 1.1 million square feet of hotel use (or about 1,600 hotel rooms), 390,000 square feet of retail, and about 2,899 new residential units. A key redevelopment in the study area—the 15 Penn Plaza project, which is primarily an office project that replaces the Hotel Pennsylvania—is expected to eliminate about the same number of hotel rooms that would be built elsewhere in the study area.

The 2,899 new residential units are expected to add another 4,986 residents to the study area. This increases the current population estimate from 16,188 to 21,171, an increase of 30.8 percent and a clear indication of the continuing trend of residential growth in the areas immediately adjacent to the Midtown Central Business District (CBD), consistent with long standing public policy for the West Chelsea area, the corridor along Sixth Avenue, and the Hudson Yards. The new office and retail development can be expected to add about 9,000 workers to the study area, or about a 10 percent increase over the 2000 estimated private sector employment base.

As described in the 2006 FEIS, the study area already has a well-established mixed-use commercial economic base, and these changes in background conditions would not significantly alter existing economic patterns but rather would strengthen the area’s identity. The Project site is located in a stable and desirable marketplace, as demonstrated by relatively low vacancy rates. Although there is more of a trend toward residential, hotel, and retail development than office uses, and additional No Build projects have been added, the essential socioeconomic patterns

within the study area have remained similar to what was expected in the 2006 FEIS. In summary, changes in background conditions since 2006 and future conditions anticipated through 2015 would not substantially alter the conclusions presented in the 2006 FEIS for socioeconomic conditions.

## **C. PROJECT DESIGN CHANGES**

### **FARLEY COMPLEX—PHASE 1**

In the short-term, the proposed below-grade changes to the Project are not expected to significantly change total employment for any rail service providers using the station, but over the long term would facilitate meeting the expected growth in demand for rail passenger services and thus increase associated employment. The proposed changes would not result in any direct or indirect displacement of residents, jobs, or economic activity. The Project would fulfill its long-standing goal to improve the condition and character of travel to and from New York City. Therefore, the proposed changes would not change the 2006 FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to socioeconomic conditions.

### **FARLEY COMPLEX—PHASE 2**

#### *AMTRAK STATION OPTION*

The proposed Project changes under the Amtrak Station Option would not involve any alterations to the overall program of uses for the Project. Although some design and configuration elements would change, these changes would not require any new structures or expansion of building floor area, and thus would result in no notable changes to projected employment on-site and no alteration of basic employment characteristics of the study area. While the amount of space occupied by Amtrak within the station (100,000 square feet) would be greater than the amount that was assumed in the 2006 FEIS to have been occupied by NJT (34,000 square feet), there would be no net change in overall Amtrak employment (or in employment for the other railroads) at the Penn Station complex, the same as was assumed in the 2006 FEIS. In the short-term, the Amtrak Station Option would not be expected to significantly change total employment for any service providers using the station, but over the long term would facilitate meeting the expected growth in demand for rail passenger services and thus increase associated employment. There is a projected increase in the amount of station-specific retail space that would be privately managed, which can be expected to generate demand for about 347 employees (as estimated in the 2006 FEIS) and would improve station amenities to passengers and other users of the station. Since the current retail USPS operations would remain, the Amtrak Station Option would not result in any direct displacement of jobs or economic activity.

Like the project assessed in the 2006 FEIS, the Amtrak Station Option would not result in any new significant adverse impacts due to direct or indirect residential displacement or indirect business and institutional displacement. The Amtrak Station Option would not represent a substantial increase in the concentration of any particular economic sector, and no alteration of existing patterns would be expected. All of the uses contemplated under the Amtrak Station Option are well established in the study area, which already has a dense and diverse amount of economic activity.



## **Moynihan Station Development Project Technical Memorandum**

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Like the project assessed in the 2006 FEIS, the Amtrak Station Option would continue to expand the existing base of transportation offerings within the study area, thereby drawing new transportation users and visitors to the area within and immediately surrounding the Farley Complex. The other proposed uses within the Farley Complex also would continue to attract and retain visitors within the study area. The resultant incremental pedestrian flow would not have any adverse effect on commercial property values within the study area east of the Farley Complex, where there are already heavy volumes of pedestrian traffic. Commercial establishments along other nearby thoroughfares could experience rent increases, as their property values could increase due to the increased pedestrian traffic. Most of the existing retail stores would benefit from the increased pedestrian flow, allowing them to increase their overall sales and avoid indirect displacement due to increased rent. Those that would be most vulnerable to indirect displacement due to increased rents would be those retail uses that may not be able to capitalize as effectively from the increased pedestrian flow.

Like the project assessed in the 2006 FEIS, the Amtrak Station Option would not significantly affect business conditions in any industry or any category of business within or outside the study area, nor would it indirectly reduce employment or adversely affect the viability of any industry or category of business. Development under the Amtrak Station Option with the proposed changes would not introduce new, competing businesses that would drive out or otherwise diminish the performance of any identifiable business sector. Overall, the Amtrak Station Option would reinforce existing business sectors, and provide new office space to retain and attract businesses.

The Amtrak Station Option would fulfill the Project's long-standing goal to improve the condition and character of travel to and from New York City, reinforcing the commercial vitality of the western portions of the Midtown CBD and enhancing the growing areas to the west, north, and south of the Project. Therefore, the proposed changes under the Amtrak Station Option would not change the 2006 FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to socioeconomic conditions.

### ***OPEN STATION OPTION***

Like the Amtrak Station Option and the project assessed in the 2006 FEIS, the proposed changes under the Open Station Option would not involve any alterations to the overall program of uses for the Project. Although some design and configuration elements would change, these changes would not require any new structures or expansion of building floor area, and thus no notable changes to projected employment. In the short-term, the Open Station Option would not be expected to change total employment for any service providers using the station significantly, but over the long term would facilitate meeting the expected growth in demand for rail passenger services and thus increase associated employment. There is a projected increase in the amount of station-specific retail space that would be privately managed, which can be expected to generate demand for about 347 employees (as estimated in the FEIS) and would improve station amenities to passengers and other users of the station. Since the current retail USPS operations would remain, the Open Station Option would not result in any direct displacement of jobs or economic activity.

Like the Amtrak Station Option and the project assessed in the 2006 FEIS, the Open Station Option would not result in any new significant adverse impacts due to direct or indirect residential displacement or indirect business and institutional displacement. The Open Station Option would not represent a substantial increase in the concentration of any particular

economic sector, and no alteration of existing patterns would be expected. All of the uses contemplated under the Open Station Option are well established in the study area, which already has a dense and diverse amount of economic activity.

Like the Amtrak Station Option and the project assessed in the 2006 FEIS, the Open Station Option would continue to expand the existing base of transportation offerings within the study area, thereby drawing new transportation users and visitors to the area within and immediately surrounding the Farley Complex. The other proposed uses within the Farley Complex also would continue to attract and retain visitors within the study area. The resultant incremental pedestrian flow would not have any adverse effect on commercial property values within the study area east of the Farley Complex, where there are already heavy volumes of pedestrian traffic. Commercial establishments within other nearby thoroughfares could experience rent increases, as their property values could increase due to the increased pedestrian traffic. Most of the existing retail stores would benefit from the increased pedestrian flow, allowing them to increase their overall sales and avoid displacement. Those that would be most vulnerable to indirect displacement due to increased rents would be those retail uses that may not be able to capitalize as effectively from the increased pedestrian flow.

Like the Amtrak Station Option and the project assessed in the 2006 FEIS, the Open Station Option would not significantly affect business conditions in any industry or any category of business within or outside the study area, nor would it indirectly reduce employment or adversely affect the viability of any industry or category of business. Development under the Open Station Option with the proposed changes would not introduce new, competing businesses that would drive out or otherwise diminish the performance of any identifiable business sector. Overall, the Open Station Option would reinforce existing business sectors, and provide new office space to retain and attract businesses.

Like the Amtrak Station Option, the Open Station Option would fulfill the Project's long-standing goal to improve the condition and character of travel to and from New York City, reinforcing the commercial vitality of the western portions of the Midtown CBD and enhancing the growing areas to the west, north, and south of the Moynihan project. Therefore, the proposed changes under the Open Station Option would not change the 2006 FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to socioeconomic conditions. \*

**A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to community facilities that were not previously identified in the 2006 FEIS. The regulatory context and methodology for portions of this analysis are the same as described in the 2006 FEIS. The methodologies for assessing potential impacts to public schools and publicly-funded child care facilities have changed since 2006, and those changes are described below. Consistent with the 2006 FEIS, this Technical Memorandum does not provide an analysis of public health care or library services, as the Project with the proposed changes and changes due to background conditions does not meet the *CEQR Technical Manual* thresholds for such analysis.

**B. CHANGES IN BACKGROUND CONDITIONS AND METHODOLOGIES**

The 2006 FEIS analyzed future conditions in 2010, by which time the Project was expected to be complete; however, as described in Section 1, “Project Description,” the Project is now anticipated to be fully complete in 2015. Therefore, in connection with the preparation of this Technical Memorandum, background conditions and the status of development projects anticipated for completion through 2015 have been updated for the FEIS study area.

The 2010 future conditions included approximately 28 No Build projects including: 6.1 million gsf of new office space; 603,492 gsf of new retail space; 330,260 gsf of new community facility space; 9,084 new residential units; and 1,600 new hotel rooms. In comparison, the 2015 future conditions assume: 4.9 million gsf of new office space; 823,636 gsf of new retail space; 198,726 gsf of new community facility space; 11,874 new residential units; and 2,823 new hotel rooms. Overall, the total development anticipated to be completed by the Project’s 2015 Build year is similar to the total development anticipated to have been completed by 2010 (as analyzed in the 2006 FEIS) but with a smaller amount of office and community facility development and more hotel, residential, and retail development.

**POLICE AND FIRE SERVICES**

These changes to background conditions are modest in relation to the overall land use development anticipated within the study area, and notwithstanding these changes, the overall profile of the study area will remain the same as analyzed in the 2006 FEIS for the future conditions in 2010. None of the changes to background conditions involve the direct displacement of a police station, fire station, emergency medical service (EMS) facility, or other community facility. The New York Police Department (NYPD) would continue to evaluate its staffing needs and assign personnel based on population growth, area coverage, crime levels, and other local factors. As noted in the 2006 FEIS, the New York City Fire Department (FDNY)

believes it would need additional resources, including a new firehouse, to continue to provide adequate fire protection throughout Hudson Yards (which includes the Farley Complex); this condition would not change with the changes to background conditions through 2015 and would not alter the 2006 FEIS finding of no significant adverse impact on police or fire services.

## **PUBLIC SCHOOLS**

The updated information on background conditions was reviewed to determine whether the Project's potential effects on public schools would remain consistent with the conclusions in the 2006 FEIS. The schools analysis was also updated to account for new information on current school enrollment and new enrollment projections, and to use updated *CEQR Technical Manual* pupil generation rates.

Current school enrollment data and enrollment projections for up to 10 years into the future are released annually by the School Construction Authority (SCA). This analysis uses the most recent data available, including school enrollment for the 2008-2009 school year and enrollment projections through the 2017-2018 school year. The 2006 FEIS analysis used data on school enrollment for the 2003-2004 school year. For enrollment projections, the New York City Department of City Planning's projections (actual 2003, projected 2004-2013), which were higher than those of the New York City Department of Education (DOE), were used.

The updated CEQR pupil generation rates were released in November 2008 in conjunction with the release of SCA's new five-year (2010-2014) capital plan based on this information. The new student generation rates (i.e., the number of school-age children per household) differ from those used by SCA in the past, and those used in the 2006 FEIS based on 2001 *CEQR Technical Manual* guidelines. The New York City Office of Environmental Coordination (OEC) has issued an online addendum to the *CEQR Technical Manual* that incorporates these rates into a revised Table 3C-2 for CEQR schools analyses.

Future conditions at local schools were predicted based on the new school enrollment projections and estimated enrollment from the updated list of development projects in the study area. The updated CEQR pupil generation rates were applied to the build program for the Development Transfer Site as defined in the 2006 FEIS to determine how many school children would be introduced by the Project. The effect of these school children on local schools was evaluated and compared to the effects of the Project as presented in the 2006 FEIS.

As reflected in the technical analysis that follows, these changes would not result in any additional significant adverse impacts on public schools that were not identified in the 2006 FEIS.

*Student Population.* As described above, the 2006 FEIS analysis of the Project's potential effect on public schools relied on student generation rates previously provided in Table 3C-2 of the *CEQR Technical Manual*. These rates were used to estimate the number of school age children generated per household given the location (by borough) and affordability level of new residential development. The updated CEQR pupil generation rates account for differences by borough, but do not differentiate by income mix.

As shown in **Table 5-1**, the 2006 FEIS concluded that the Project would generate 102 elementary school students, 20 intermediate school students, and 32 high school students upon completion. Based on the updated CEQR pupil generation rates, the Project would generate 113 elementary school students, 38 intermediate school students, and 56 high school students. This is 11, 18, and 24 more elementary, intermediate, and high school students, respectively, than disclosed in the 2006 FEIS. In the 2006 FEIS, the Project did not generate sufficient students to exceed the threshold for

## Moynihan Station Development Project Technical Memorandum

requiring a high school analysis (150 or more students). Similarly, the current Project would not generate sufficient students to exceed the threshold for requiring a high school analysis.

**Table 5-1**

**Estimated Number of Students Generated by the Project  
2006 FEIS versus with Updated CEQR Generation Rates**

School	FEIS Student Generation <sup>1</sup>	Updated CEQR Student Generation <sup>2</sup>	Difference
PS	102	113	11
IS	20	38	18
HS	32	56	24
Totals	154	207	53
<b>Notes:</b> 1. Based on student generation rates provided in the 2001 <i>CEQR Technical Manual</i> 2. Based on updated SCA pupil generation rates (0.12 elementary students, 0.04 intermediate students, and 0.06 high school students per household).			

*Conclusions.* Using the updated CEQR pupil generation rates and the new information about other projects planned in the study area, elementary schools within Region 3 and CSD 2 would have seat shortfalls that would be less than what had been predicted in the 2006 FEIS. This would occur primarily because of the large number of elementary and intermediate school seats that are anticipated to be constructed in CSD 2 by the 2015 build year. For a conservative analysis, it was assumed that none of these schools would be developed within Region 3. In addition, based on the revised SCA projections, predicted enrollment in the CSD 2 elementary and intermediate schools is notably lower compared to the 2006 FEIS. **Table 5-2** below shows school enrollment, capacity and utilization based on the new methodology and updated background conditions in the 2015 future without the Project and the 2015 future with the Project. **Table 5-3** below shows school enrollment, capacity, and utilization as projected in the 2006 FEIS for the 2010 No Build condition compared to the 2015 Build condition.

According to the guidance of the 2001 *CEQR Technical Manual*, if a project causes an increase of 5 percent or more in a deficiency of available seats, a significant adverse impact may result. Accounting for changes in background conditions and methodology, the Project would not increase the utilization rates for elementary and high schools by more than 5 percent, and would actually not be in a deficit condition. Therefore, the Project would not result in a significant adverse impact to those school levels and is considerably below the threshold examined in the 2006 FEIS.

For intermediate schools, the total projected Region 3 enrollments with the Project would drop from 559 students in the 2006 FEIS to 313 students, and the capacity would increase from 273 to 292 seats, for a total projected increase of 265 available seats. Furthermore, although there would still be a deficiency in available seats in Region 3 intermediate schools, the proportion of deficiency is considerably lower than analyzed in the 2006 FEIS, dropping from 205 percent utilization to 107 percent. The Project would still be expected to generate more than a 5 percent increase in the deficiency of available seats in Region 3 and thus would continue to contribute to a shortfall in intermediate school seats in Region 3 (as identified in the 2006 FEIS); however, as noted above, it was assumed that none of the 8 elementary and intermediate schools that are anticipated for completion by 2015 would be located in Region 3. Should one of the planned intermediate schools be located within this area, it is anticipated that the deficiency of available seats would be alleviated. Furthermore, CSD 2 as a whole would be operating at 66 percent of capacity in the future with the Project in 2015—compared to 124 percent of capacity as projected in the 2006 FEIS—and therefore DOE could shift the boundaries of school catchment areas within the CSD to alleviate this deficiency.

## Section 5: Community Facilities

Overall, accounting for the changes in background conditions and the updated methodology, the Project would not result in any significant adverse impacts on public schools not previously identified in the 2006 FEIS. In summary, changes in background conditions since 2006 and future conditions anticipated through 2015 would not substantially alter the conclusions presented in the 2006 FEIS for community facilities.

**Table 5-2**  
**Analysis with Updated Background Conditions and Methodology:**  
**Estimated Public Elementary, Intermediate, and High School Enrollment, Capacity, and**  
**Utilization 2015 Future Without and With the Project**

Study Area	2015 Future Without the Project				2015 Future With the Project			
	Total Enrollment	Capacity <sup>1</sup>	Available Seats	Utilization	Total Enrollment	Capacity <sup>1</sup>	Available Seats	Utilization
<b>Elementary Schools</b>								
Region 3 <sup>2</sup>	2,257	2,594	336	87%	2,370	2,594	223	91%
CSD 2	18,293	19,898	1,605	92%	18,406	19,898	1,492	93%
<b>Intermediate Schools</b>								
Region 3 <sup>2</sup>	275	292	17	94%	313	292	-21	107%
CSD 2	7,180	10,986	3,806	65%	7,218	10,709	3,768	66%
<b>High Schools</b>								
Manhattan Total	43,266	42,635	-631	101%	43,322	42,635	-687	102%
<b>Notes:</b> <sup>1</sup> The capacity column includes additional elementary, intermediate, and high school capacity identified for development by 2015 in the DOE five-year capital plan. <sup>2</sup> Although analysis of schools by region is being phased out in favor of analysis of schools within ½ mile of a project site, this study area was maintained for consistency with the 2006 FEIS study areas.								
<b>Sources:</b> SCA <i>Enrollment Projections</i> ; DOE, <i>Utilization Profiles: Enrollment/Capacity/Utilization, 2008-2009</i> . DOE <i>FY 2010-2014 Five-Year Capital Plan</i> , June 2009								

**Table 5-3**  
**2010 Build Condition (2006 FEIS) vs. 2015 Build Condition**

Study Area	Year	Students Generated by Proposed Action	Total Projected Enrollment	Capacity	Available Seats	Utilization
<b>Elementary Schools</b>						
Region 3	2010	102	3,934	2,770	-1,164	142%
	2015	113	2,370	2,594	223	91%
	<b>Change</b>	<b>11</b>	<b>-1,564</b>	<b>-176</b>	<b>1,387</b>	<b>-51%</b>
CSD 2	2010	102	19,105	16,482	-2,623	116%
	2015	113	18,406	19,898	1,492	93%
	<b>Change</b>	<b>11</b>	<b>-699</b>	<b>3,416</b>	<b>4,115</b>	<b>-23%</b>
<b>Intermediate Schools</b>						
Region 3	2010	20	559	273	-286	205%
	2015	38	313	292	-21	107%
	<b>Change</b>	<b>18</b>	<b>-246</b>	<b>19</b>	<b>265</b>	<b>-98%</b>
CSD 2	2010	20	8,932	7,225	-1,707	124%
	2015	38	7,218	10,709	3,768	66%
	<b>Change</b>	<b>18</b>	<b>-1,714</b>	<b>3,484</b>	<b>5,475</b>	<b>-58%</b>

## PUBLICLY FUNDED CHILD CARE FACILITIES

The 2006 FEIS did not include an analysis of the Project's potential effects on publicly funded child care facilities, as at that time the Project did not meet the *CEQR Technical Manual's* threshold for such review. In December 2009, the New York City Department of City Planning (DCP) released updated CEQR generation rates for publicly funded child care-eligible children; these rates are being incorporated into the *CEQR Technical Manual* via an online addendum on the New York City Office of Environmental Coordination's website. As described below, the Project, under one option for the Development Transfer Site, now meets the *CEQR Technical Manual* threshold warranting an analysis of impacts on child care facilities.

Per the revised *CEQR Technical Manual* table<sup>1</sup> that lists the multipliers for estimating the number of children eligible for publicly funded child care and Head Start, the new rates for Manhattan are 0.115 child care-eligible children up to age 6 per low- or low-moderate income unit. Using these generation rates, projects in Manhattan that would create 169 or more units of low-income and/or low- to moderate-income housing would generate more than 20 child care-eligible children, and thus would meet the threshold for a detailed analysis of child care centers.

As described above, the Project, under either the Amtrak Station or Open Station Options, assumes that the Development Transfer Site could utilize a portion of the Farley Complex's unused development rights, as was assessed in the 2006 FEIS. Two options are contemplated for the Development Transfer Site building. The first option is a primarily residential building that would have approximately 940 units and 120,000 square feet of retail space. The second option is a mixed-use option that would contain a 310,000-square-foot hotel, 630 residential units, and 120,000 square feet of retail space. For the purposes of this analysis, it is conservatively assumed that either building would be rental units (versus condominiums) and that 20 percent of the units would be developed as affordable units provided under the 80/20 affordable housing program.

Based on the updated CEQR generation rates, the mixed-use option for the Development Transfer Site with 630 units would not meet the threshold for an analysis of potential impacts on publicly funded day care facilities, as it would result in 126 affordable units and its impact is considered *de minimus*. The primarily residential option could create as many as 940 new residential units. Under a conservative assumption—that the 940 units would be rental housing with 20 percent developed as affordable housing—the Development Transfer Site could generate 188 units of affordable housing and would, therefore, exceed the detailed analysis threshold. Using the generation rates described above, the Project under the 940 unit scenario could potentially generate 22 children under the age of 6 who would be eligible for publicly funded child care programs.

Enrollment and capacity information was obtained from the New York City Administration for Children's Services (ACS) for child care facilities and Head Start programs and is current as of July and December 2008. For this analysis, publicly funded child care facilities within 1.5 miles of the Development Transfer Site were identified and examined; private child care facilities were not considered in the analysis. Following CEQR methodologies, impacts were considered significant if the Project would result in demand for slots in publicly funded child care centers greater than available capacity and the increased demand generated by the Project would be 5 percent or more of the collective capacity of the child care centers serving the study area in the future without the Project.

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<sup>1</sup> It is Table 6-1b in the 2010 *CEQR Technical Manual*

## **BACKGROUND**

Publicly funded child care for the children of income-eligible households in New York City is sponsored and financially supported by the Division of Child Care and Head Start (CCHS), within the ACS, and Head Start, federally funded early childhood education and family support programs. ACS contracts with hundreds of private, non-profit organizations to provide Child Care and Head Start programs in communities across the City that are licensed by the New York City Department of Health and Mental Hygiene (DOHMH). ACS also issues vouchers to eligible families to provide financial assistance in accessing care from formal and informal providers in the City.

To receive subsidized child care services, a family must meet specific financial and social eligibility criteria that are determined by federal, state, and local regulations. Eligibility is determined by a child's age (0-13), and a family's gross income, with consideration of family size. To meet the social eligibility for publicly funded child care, a family must also have an approved "reason for care," such as involvement in a child welfare case or participation in a "welfare-to-work" program.

Publicly funded, center-based and family-based child care programs are contracted through community based organizations under the auspices of CCHS within ACS for the children of income-eligible households. Space for one child in such child care centers is termed a "slot." ACS funds center-based services for children under the age of five, and family-based services for income-eligible children up to the age of 12. The name, location and enrollment information for publicly funded child care centers in the study area are provided below.

Head Start is a national program that promotes school readiness by enhancing the social and cognitive development of children through the provision of educational, health, nutritional, social and other services. The program provides grants to local public and private non-profit and for-profit agencies to provide comprehensive child development services to economically disadvantaged children and families, with a special focus on helping preschoolers develop the early reading and math skills they need to be successful in school.

In addition to attending group child care centers, eligible children may also be cared for in the homes of family child care providers, also licensed by DOHMH. Family child care providers are professionals who provide care for 3 to 7 children in their residences. Group family child care providers are professionals who care for 7 to 12 children, with the help of an assistant, in their homes. The majority of family and group family child care providers in New York City are registered with a child care network, which provides access to training and support services.

In addition to these child care facilities, other publicly financed child care options are available to residents of the study area. As discussed above, given that there are no location requirements for enrollment in child care centers, some parents/guardians may choose a child care center closer to a location of employment than their place of residence. Parents/guardians who have an ACS voucher may access child care from private providers, in either a formal or informal setting, both within and outside the 1.5-mile study area, potentially in neighborhoods close to parents' workplaces. The portability of ACS vouchers indicates that services beyond a 1.5-mile study area can be and are used by eligible parents. However, as discussed in the *CEQR Technical Manual*, the centers closest to a project site are more likely to be subject to increased demand.



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### EXISTING CONDITIONS

There are five publicly funded child care facilities located within an approximately 1.5-mile radius of the Development Transfer Site (see **Figure 5-1**). As shown in **Table 5-4**, current capacity of these facilities is 251 slots with an enrollment of 244, for a current utilization of 97 percent. As mentioned previously, additional capacity could likely be provided by private child care centers, but these facilities are not included in this analysis. There are also three Head Start programs in the study area that have a capacity of 218 slots and an enrollment of 183.

**Table 5-4**  
**Publicly Funded Child Care Facilities in 1.5-Mile Study Area**

Map No.	Name	Address	Capacity	Enrollment
<b>Child Care Facilities</b>				
1	ICAHN House	515 West 41st Street	37	28
2	Hudson Guild	459 West 26th Street	90	98
3	LYFE Manhattan High School	317 West 52nd Street	8	6
4	YWCA Polly Dodge Early Learning Center	538 West 55th Street	83	82
5	Bellevue Educare	462 First Avenue	33	30
<b>Child Care Facilities Total</b>			<b>251</b>	<b>244</b>
<b>Head Start Facilities</b>				
A	Hudson Guild	459 West 26th Street	111	93
B	Plaza Head Start	410 West 40th Street	47	30
C	Bank Street Head Start	113 East 13th Street	60	60
<b>Head Start Total</b>			<b>218</b>	<b>183</b>
<b>Total</b>			<b>469</b>	<b>427</b>
<b>Note:</b> See <b>Figure 5-1</b> for public child care facilities.				
<b>Source:</b> Administration for Children's Services, July and December 2008.				

### THE FUTURE WITHOUT THE PROPOSED PROJECT

In the future without the proposed Project, planned or proposed development projects will introduce an additional 11,874 residential units within 1.5 mile of the Development Transfer Site. For the purposes of this analysis, it was conservatively assumed that 20 percent of these new units would be occupied by low- to moderate-income residents. Based on this assumption, approximately 2,375 units are expected to be affordable for low- or low- to moderate-income households. Using the new CEQR generation rates discussed above, this amount of development will introduce an estimated 273 children under the age of 6 who are eligible for publicly funded child care. No new publicly funded child care centers have been identified as planned in the study area, but additional facilities may open to meet the rising demand for services.

Based on these assumptions, if no new child care facilities open in the future without the proposed Project, the number of children eligible for public child care and Head Start would exceed available slots in 2015. As described above, there are currently 469 slots with 427 enrollees, leaving a surplus of 42 seats. When the estimated 273 eligible children introduced by planned development projects are added to this total, there will be a shortage of 231 slots in publicly funded child care in the study area (149 percent utilization).

### PROBABLE IMPACTS OF THE PROPOSED PROJECT

Under the most conservative scenario—in which the Development Transfer Site is developed with the primarily residential option, as rental rather than condominium units, and includes an affordable housing component—the proposed Project could generate as many as 188 affordable housing units on the Development Transfer Site, which would introduce up to 22 children up to

age 6 that are eligible for publicly funded child care services, according to the new *CEQR Technical Manual* generation rates discussed above. Demand for child care facilities in the 1.5-mile study area will already exceed available capacity in the future without the proposed Project. If no new child care facilities are added in the study area to respond to this new demand, the 22 new children up to age 6 from the proposed Project would exacerbate the predicted shortage in child care slots. However, the Project-generated demand would constitute 4.6 percent of the collective capacity of child care and Head Start facilities (469 slots) in the study area.

While accounting for the updated December 2009 *CEQR Technical Manual* generation rates and changes in background conditions, the new detailed analysis indicates that although a shortfall of child care slots is identified with the Project in 2015, this shortfall would occur primarily due to changes in background conditions and analysis methodologies that would not be caused by the proposed changes in the Project. Independent of the proposed Project, the large increases in demand generated by the substantial new development anticipated in the Hudson Yards and West Chelsea areas will substantially alter the existing baseline of available child care, creating a large shortfall in capacity. The additional demand generated by the Project in the most conservative scenario, while exceeding available future capacity, would not exceed 5 percent or more of the collective capacity of the child care centers serving the study area in the future without the Project and would be modest compared with the overall growth in demand that will occur independently of the Project. Therefore, the Project would not result in any significant adverse impacts on publicly funded child care facilities.

## **C. PROJECT DESIGN CHANGES**

### **FARLEY COMPLEX—PHASE 1**

The proposed Project changes do not include any changes to the Project's proposed uses, and would not require any new structures or expansion of building floor area. No new residential population would be introduced, and thus there would be no new student population or impacts to area schools. No police stations, fire stations, EMS facilities, or other community facilities would be displaced. NYPD would continue to evaluate its staffing needs and assign personnel based on population growth, area coverage, crime levels, and other local factors, and as noted above, FDNY would continue to monitor and evaluate future resources necessary to provide adequate fire protection. Therefore, it is not anticipated that the proposed below-grade changes would change the conclusions of the 2006 FEIS with respect to community facilities.

### **FARLEY COMPLEX—PHASE 2**

Neither of the two station options would alter the overall development program that could affect community services as no station elements would add a new residential population or result in the displacement of police stations, fire stations, EMS facilities, or other community facilities. Since the residential component of the Project would remain the same as in the 2006 FEIS, no Project design changes would change demands for community facilities (as opposed to background analyses as described above). Therefore, it is anticipated that there would be no change to the conclusions of the 2006 FEIS with respect to community facilities and the proposed Project would not result in significant adverse impacts. \*

## **A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to open space that were not previously identified in the 2006 FEIS. As with the 2006 analysis, this chapter generally uses methodologies and follows the guidelines of the 2001 *CEQR Technical Manual*.

As described below, changes to background conditions since the 2006 FEIS and the largely operational changes to the Project (i.e., the overall size of the project has not changed) would not substantially alter the conclusions presented in the 2006 FEIS that the Project is not anticipated to result in significant adverse open space impacts.

## **B. CHANGES IN BACKGROUND CONDITIONS**

The 2006 FEIS analyzed a No Action Alternative for future conditions in 2010, by which time the Project was expected to be complete; however, as described in Section 2, “Analytical Framework,” of this Technical Memorandum the Project is now anticipated to be fully complete in 2015. The 2015 build year provides a new baseline condition and list of No Build projects that were not included in the 2006 FEIS. This analysis incorporates those updated projects and also takes into account the attendant changes to worker and residential populations.

### **OPEN SPACE INVENTORY**

In the ¼-mile study area, no new open spaces would be added by 2015. Similarly, the 2006 FEIS did not include any new open spaces in the ¼-mile study area that would be added to the open space inventory by 2010 or 2015. For this Technical Memorandum, three projects within the ½-mile study area have been identified that would include new open space. These include:

- The portion of the High Line (between Tenth and Eleventh Avenues from West 20th Street to West 30th Street) that is currently under construction and expected to be completed at the end of 2010. The portion of the High Line south of West 20th Street that opened in 2009 has also been accounted for in the update to background open space conditions. The 2006 FEIS included the High Line project in the 2010 baseline condition for the ½-mile study area.
- Hudson Park and Boulevard, which will include a 4.0-acre mid-block park and boulevard system in the midblocks between Tenth and Eleventh Avenues from West 33rd Street to West 39th Street with a pedestrian bridge connecting to West 42nd Street (a portion of the project, approximately 2.12 acres of passive space, will be completed by 2013). The 2006 FEIS included this project in the 2010 baseline condition for the ½-mile study area.
- A small open space associated with the Wyndham Garden Inn on West 36th Street. This is a new project in the ½-mile study area.

Together, these spaces will add more than 6.5 acres of open space to the ½-mile study area.

With the addition of the portion of the High Line that has already opened, the existing open space inventory would also increase from levels in the 2006 FEIS. Including the High Line project, the open space inventory now shows 16.22 acres of total open space within ½-mile of the Project site, of which 10.22 acres are passive and 6.00 acres are active. Nonetheless, in the future with the Project, conditions assumed for this Technical Memorandum show considerably less public open space compared to those assumed in the 2006 FEIS. As shown in Table 6-1, below, passive, active, and total open space anticipated for 2010 in the 2006 FEIS were 25.96, 10.10, and 36.06 acres, respectively. Current estimates for 2015 anticipate 16.83, 6.00 and 22.83 acres of passive, active, and total open space. This difference is due to the inclusion in the 2006 FEIS of several spaces that were then expected to be completed by 2010, but are currently not expected to be built by 2015. For example, open spaces that have been removed from the analysis include 7.5 acres over the eastern portion of Caemmerer Yard and 3.2 acres associated with the Jacob Javits Convention center.

### **USER POPULATIONS**

This analysis also accounts for changes to the worker population resulting from changes in future background conditions, both for the Project site and for the surrounding area.

#### ***CHANGES TO NO BUILD CONDITIONS ON THE PROJECT SITE***

As shown in **Table 2-1** of Section 2, “Analytical Framework” of this Technical Memorandum, if the Project does not go forward, it is assumed that the USPS would occupy 265,000 square feet of space, whereas in the 2006 FEIS it was assumed that the USPS would occupy 650,100 square feet. As a result, it is currently assumed that the Farley Complex would contain more commercial use in the No Build condition than was assumed in the 2006 FEIS. This would result in an estimated 746 fewer USPS workers, an increase in 460 office workers, and an increase of 675 retail workers. Taken together on the Project site, there would be an overall increase of 389 workers in the future without the Project when compared to levels expected in the 2006 FEIS.

#### ***CHANGES TO NO BUILD CONDITIONS IN THE SURROUNDING AREA***

As shown in **Table 2-3** of Section 2, “Analytical Framework” of this Technical Memorandum, compared to conditions in the 2006 FEIS there is expected to be 1.2 million square feet less office space, 1,223 additional hotels rooms, 220,000 additional square feet of retail, 2,790 additional residential units, and 131,500 square feet less community facility space in the ½-mile study area. As a result, the open space user populations would change accordingly. Compared to the levels expected in the 2006 FEIS, there would be 12,325 more residents and 507 fewer workers in the future without the Project within the ½-mile study area.

### **OPEN SPACE RATIOS**

The 2006 FEIS reported that existing open space ratios were below *CEQR Technical Manual* guidelines, except for the ratio of passive open space per 1,000 residents, and that the Project as then proposed would not change these ratios relative to the guidelines. Specifically, the 2006 FEIS anticipated that in the ½-mile study area the ratio of total open space per 1,000 residents would decrease from 0.803 to 0.767 with the Project, well below the suggested guideline of 2.5 acres per 1,000 residents. Similarly, the ratio of active open space per 1,000 residents would decrease from 0.225 to 0.217 with the Project, well below the guideline of 2.0 acres. The ratio of passive open space per 1,000 residents would decrease from 0.578 to 0.549 and would continue

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to exceed the guideline of 0.5 acres. However, the ratio of passive open space for combined workers and residents would decrease slightly from 0.084 to 0.083 acres per 1,000 persons, and would be below the guideline of 0.20.

In terms of percentage change, the 2006 FEIS indicated that the ratio of total open space per 1,000 residents would decrease 4.5 percent, the ratio of active open space per 1,000 residents would decrease 3.6 percent, and the ratio of passive open space per 1,000 residents would decrease 5.0 percent. The ratio of passive open space for combined workers and residents would decrease by 1.2 percent.

The anticipated effects of the Project as now proposed, taking into consideration updated background conditions, would be similar to those identified in the 2006 FEIS. Although the future without the Project condition would have less open space and lower open space ratios, the change from No Build to Build conditions would be similar to those in the 2006 FEIS (see **Table 6-1**). In the ½-mile study area, the ratio of total open space per 1,000 residents would decrease from 0.388 to 0.371, remaining well below the suggested guideline of 2.5 acres per 1,000 residents. The ratio of active open space to 1,000 residents would decrease from 0.102 to 0.099, also remaining well below the guideline of 2.0 acres. Due to the significant increase in the study area residential population, the ratio of passive open space per 1,000 residents, which previously slightly exceeded the guideline, would decrease from 0.286 to 0.272, remaining well below the guideline of 0.5 acres. The ratio of passive open space for combined workers and residents would continue to fall below the guideline of 0.20 acres per 1,000 persons, decreasing slightly from 0.053 to 0.052. The change in the background conditions between the 2006 FEIS and the Technical Memorandum are due to the decrease in open space inventory assumed for this analysis (described above) as well as the increase in residential population that is now expected in the area.

**Table 6-1**  
**Comparison of Open Space Resources**  
**in the ½-Mile Study Area: 2006 FEIS and 2010 Technical Memorandum**

	2006 FEIS Future Without the Project (2010)	2006 FEIS Future With the Project (Scenario 2: 2010)	2010 Tech Memo Future Without the Project	2010 Tech Memo Future With the Project
<b>Open Space Acreage</b>				
Passive	25.96	25.56	16.83	16.43
Active	10.10	10.10	6.00	6.00
Total	36.06	35.66	22.83	22.43
<b>Open Space Ratios</b>				
Active per 1,000 Residents	0.225	0.217	0.102	0.099
Passive per 1,000 Residents	0.578	0.549	0.286	0.272
Total per 1,000 Residents	0.803	0.767	0.388	0.371
Combined Passive per 1,000 residents and workers	0.084	0.083	0.053	0.052
<b>Percent Change from No Action to Action</b>				
Passive	N/A	-5.0	N/A	-5.0
Active	N/A	-3.6	N/A	-2.7
Total	N/A	-4.5	N/A	-4.4
Combined Passive	N/A	-1.2	N/A	-2.6
<b>Notes:</b> Planning Goal Ratios: Passive: 0.15 acres/1,000 workers. Passive Combined: A weighted average ratio is used combining DCP's goals of 0.50 acres/1,000 residents and 0.15 acres/1,000 workers. <b>Source:</b> 2000 U.S. Census of Population and Housing.				

In terms of percentage change, with the Project the ratio of total open space per 1,000 residents would decrease 4.4 percent, the ratio of active open space per 1,000 residents would decrease 2.7 percent, and the ratio of passive open space per 1,000 residents would decrease 5.0 percent. The ratio of passive open space for combined workers and residents would decrease by 2.6 percent. These conditions are slightly better than what was disclosed in the 2006 FEIS.

### **QUALITATIVE CONSIDERATIONS**

As was identified in the 2006 FEIS, the Project would provide publicly accessible indoor spaces within the Farley Complex (the Train Hall and the Intermodal Hall) that could be used for passive recreation, such as reading, and may include public art exhibitions and performances. In addition, the open spaces immediately outside of the ½-mile study area would continue to help alleviate the deficiency in open space resources, as was concluded in the 2006 FEIS.

### **CONCLUSION**

Similar to the results of the 2006 FEIS, open space ratios in the ½-mile study area would decrease by 5 percent or less from the future without the Project. While all open space ratios would remain below *CEQR Technical Manual* guidelines in the future with the Project in 2010, no significant adverse impacts are expected to result from the Project. Neighboring open spaces would continue to relieve the open space deficiency in the study area. In addition, the Project itself would provide high quality areas of indoor public space, as was identified in the 2006 FEIS.

In summary, as with the Project analyzed in the 2006 FEIS, the Project as currently proposed would not be expected to have a significant adverse impact on the adequacy of open space resources within the study area by the 2015 Build year.

## **C. PROJECT DESIGN CHANGES**

### **AMTRAK STATION OPTION**

As described in Section 1, “Project Description” of this Technical Memorandum, the changes to the Project under the Amtrak Station Option would be largely operational in nature. These changes are not expected to significantly affect user populations, open space conditions, or open space ratios. As such, the Project would not have a significant adverse impact on the adequacy of open space resources.

### **OPEN STATION OPTION**

As described in Section 1, “Project Description” of this Technical Memorandum, the changes to the Project under the Open Station Option would be largely operational in nature. These changes are not expected to significantly affect user populations, open space conditions, or open space ratios. As such, the Project would not have a significant adverse impact on the adequacy of open space resources. \*

## **A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to shadows that were not previously identified in the 2006 FEIS. The regulatory context and methodology for this analysis are the same as described in the 2006 FEIS.

## **B. CHANGES IN BACKGROUND CONDITIONS**

It is assumed that the development now anticipated through 2015—compared to the development anticipated to have been completed by 2010 as analyzed in the 2006 FEIS—would cast somewhat different shadows on the public open spaces and historic resources with sun-sensitive features within the area surrounding the Project site. Cumulatively, these potential changes to background shadows would not be anticipated to alter the conclusions of the 2006 FEIS. In addition, no resources have been newly identified within the Project’s study area that would need to be considered in a shadows analysis. Therefore, changes in background conditions since 2006 and future conditions anticipated through 2015 would not substantially alter the conclusions presented in the 2006 FEIS for shadows.

## **C. PROJECT DESIGN CHANGES**

### **FARLEY COMPLEX—PHASE 1**

As described in Section 1, “Project Description,” Phase 1 of the Project would consist of improvements to below-grade infrastructure and would have no shadow impacts. All of the proposed changes in this phase would occur below-grade, and thus would not have the potential to alter the conclusions of the 2006 FEIS shadows analysis. Therefore, the Project with the proposed below-grade changes would not result in any new significant adverse environmental impacts with respect to shadows.

### **FARLEY COMPLEX—PHASE 2**

#### *AMTRAK STATION OPTION*

Although some design elements would change in the Amtrak Station Option, these changes would not require any new structures or expansion of building floor area. The designs of the new Train Hall and Intermodal Hall roofs would change; however, as discussed in the 2006 FEIS, the new roofs would be transparent structures with steel framing that are not expected to cast appreciable shadows. Further, the two new roofs would be lower than planned in 2006; the Train Hall roof would rise above the roof line of the Farley Building but would not be visible from the street and the Intermodal Hall roof would not rise above the Farley Complex’s existing roof

parapet. Therefore, the Amtrak Station Option would not change the 2006 FEIS conclusion that the Project would not result in significant adverse impacts with respect to shadows.

*OPEN STATION OPTION*

The Open Station Option would have the same roof structures as the Amtrak Station Option. Therefore, the Open Station Option would also not change the 2006 FEIS conclusion that the Project would not result in significant adverse impacts with respect to shadows. \*



**A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to historic resources that were not previously identified in the 2006 FEIS. The regulatory context and methodology for this analysis are the same as described in the 2006 FEIS.

**B. CHANGES IN BACKGROUND CONDITIONS**

Since publication of the 2006 FEIS, one new historic resource has been identified in the 400-foot historic resources study area and two historic resources have been removed. These changes in background conditions would not result in significant adverse impacts with respect to historic resources that were not addressed in the 2006 FEIS.

In November 2008, the Garment Center Historic District was listed on the National Register of Historic Places but only a portion of the southernmost boundary of the large district is located within 400 feet of the Project site. Overall, the historic district (which is also listed on the New York State Register of Historic Places) includes part or all of 25 blocks in an area roughly bounded by Sixth Avenue on the east, Ninth Avenue on the west, West 35th Street on the south, and West 41st Street on the north. New York City's Garment Center (or Garment District) has been the heart of the city's, and also the nation's, garment industry since the years immediately following World War I. It also includes architectural remnants from an early tenement district later infamous as the city's "Tenderloin," an earlier incarnation of the Broadway theater district, and a publishing and printing district south and west of the New York Times tower in Times Square. Most buildings within the historic district are commercial with the most common type being the loft building, and most were constructed between 1896 and 1931, with some dating from earlier decades and others dating through the 1960s. The majority of loft and showroom buildings reflect the architectural trends of the 1920s and early 1930s. A typical 1920s loft building has a three- or four-story base, often clad in stone, with entrances and storefronts on the first story and bays of wide show windows above, and a brick-faced shaft with narrow windows in bays defined by brick piers and setbacks on the upper floors. Several garment center buildings of the immediate post-World War II era show the influence of post-War modernism. The Garment Center Historic District is significant under National Register Criterion A for its industrial and commercial history and its social and immigrant history and under National Register Criterion C for its role in community planning and development, and also for its architectural history, in particular the development of the modern loft building, including the

impact of New York City's 1916 zoning resolution which led to the creation of the typical "setback" building.<sup>1</sup>

The addition of the Garment Center Historic District to the historic resources located within the project study area would not result in significant adverse environmental impacts with respect to historic resources that were not addressed in the 2006 FEIS. No portion of the historic district is located close enough (within 90 feet) to the Project site to potentially experience adverse construction-related impacts. Most of the large historic district is located well beyond 400 feet of the Project site and there would, therefore, be limited or no visual or contextual relationship between the Project and the Garment Center Historic District. As was concluded in the 2006 FEIS, no adverse visual or contextual impacts on surrounding architectural resources are expected as a result of the Project.

In the Fall of 2009, the Cheyenne Diner, which was determined eligible for listing on the State and National Registers of Historic Places (S/NR), at 411 Ninth Avenue across from the Farley Complex, was removed from its site and relocated to Birmingham, Alabama for reasons unrelated to the Project. The relocation of the Cheyenne Diner would not affect the conclusions of the FEIS with regard to historic resources. In early 2008, the Glad Tidings Tabernacle at 325-329 West 33rd Street, across from the Farley Complex, was demolished for reasons unrelated to the Project. The Glad Tidings Tabernacle was eligible for both designation as a New York City Landmark (NYCL) and listing on the Registers. The demolition of the Glad Tidings Tabernacle affects the conclusions of the FEIS, only because the Project's Construction Protection Plan (CPP) for adjacent historic resources, while still necessary to protect two other historic resources, would no longer need to account for that non-extant resource, which was located within 90 feet of the Farley Complex.

As was concluded in the 2006 FEIS and stipulated in a Programmatic Agreement (entered into in August 2006 by the FRA, ESDC, MSDC, the New York State Historic Preservation Office [SHPO], and the conditionally designated developer) and as will be stipulated in an amended Programmatic Agreement for the Project, a CPP would be developed and implemented for the Project in consultation with SHPO regarding the former J.C. Penney Company building (S/NR-eligible) at 331-343 West 33rd Street and the former William F. Sloan Memorial YMCA (NYCL-eligible, S/NR-eligible) at 360 West 34th Street. Those two historic resources are located within 90 feet of the Farley Complex, close enough to potentially experience adverse construction-related impacts. Therefore, to avoid inadvertent construction damage from ground-borne vibrations, falling debris, collapse, or subsidence, the CPP would follow the recommendations of the New York City Department of Building's *Technical Policy and Procedure Notice (TPPN) #10/88*, which includes "a monitoring program to reduce the likelihood of construction damage to adjacent historic structures and to detect at an early stage the beginnings of damage so that construction procedures can be changed." With implementation of the CPP, no adverse impacts to historic resources are expected in connection with construction of the Project, as was concluded in the 2006 FEIS.

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<sup>1</sup> This summary of the Garment Center Historic District is adapted from the *Garment Center Historic District National Register of Historic Places Registration Form* authored by Anthony Robbins.

## **C. PROJECT DESIGN CHANGES**

### **AMENDED PROGRAMMATIC AGREEMENT**

As part of the environmental review in 2006, SHPO indicated in a letter dated July 28, 2006 that no adverse effects were expected from the conceptual design of the project provided that designs continued to be developed in consultation with SHPO. At that time, a Programmatic Agreement was also prepared in accordance with Section 800.14 of the Section 106 Regulations to establish a process for evaluating the effects on the Farley Complex and adjacent historic properties caused by the Project, which could not be fully assessed at the time, and to ensure the long-term preservation of the Farley Complex's historic significance. In August 2006, the Programmatic Agreement was entered into by the FRA, ESDC, MSDC, SHPO, and the conditionally designated developer (the Venture).

Since 2006, ESDC and MSDC have continued to consult with SHPO regarding the Project, and an amendment to the 2006 Programmatic Agreement is being prepared. The amended Programmatic Agreement will be entered into by FRA, ESDC, MSDC, SHPO, PANYNJ, the Venture, and, if it elects to participate, the Advisory Council on Historic Preservation (Advisory Council) to satisfy FRA's Section 106 responsibilities, as well as to satisfy ESDC's State Historic Preservation Act responsibilities under state law and regulations. As stipulated in the amended Programmatic Agreement, the design plans for Moynihan Station will be developed in consultation with SHPO, and SHPO's design review will cover, among other things: the Intermodal Hall; the new entrances on West 31st and 33rd Streets, including the new stair on West 31st Street and treatment of the arched openings and canopies; treatment of the remaining original section of the Farley Building's west façade (that will become the east wall of the Intermodal Hall) and the corresponding new west wall of the Intermodal Hall; the train concourse and roof; station-related retail spaces; the interior connection(s) between the station and the USPS north (and possibly south) side lobby; new Eighth Avenue entrances and canopies; treatment of the Postmaster's Office; removal of the moat along Eighth Avenue and in front of the West 31st and 33rd Street entrances; and treatment of other building elements that may be determined to have historic interest. SHPO indicated in a letter dated January 5, 2010 that no adverse effects are expected from the proposed conceptual design of the Project provided that designs continue to be developed in consultation with SHPO (see Appendix A for a copy of the letter). As a result, no significant adverse impacts are expected from the Project, as was concluded in the 2006 FEIS.

### **FARLEY COMPLEX—PHASE 1**

There would be no new significant adverse impacts to the Farley Complex historic resource from the Project components that would be part of the Phase 1 development. Most of those components would affect below-grade infrastructure and would not affect any elements of the Farley Complex that contribute to its significance.

Phase 1 would affect the Farley Complex with the creation of new at-grade entrances into the building from Eighth Avenue at the corners of West 33rd and West 31st Streets. These new entrances are not a new Project element and would be the same as the Eighth Avenue entrances assessed in the 2006 FEIS. They would be installed on each side of the monumental stairs at the corner moats in order to separate station users from USPS pedestrian traffic, which would continue to enter at the colonnade level. The stone walls bordering the moat would be removed to allow for regrading and access to the entrances. Some form of architectural treatment, such as

a special paving, would be explored to mark the location of the removed walls if requested by SHPO. Existing windows on the corner pavilions' Eighth Avenue façades would be widened to create ADA-compliant sidewalk level station entrances below the existing domed niches. These new entrances would be wider than the existing windows and they would be marked by metal and glass canopies. The canopies would have minimal connections to the building facade. The new entrances would be planned to be clearly identifiable as leading to the station, while minimized in terms of width and height and visibility of the canopies as much as practicable. As was concluded in the 2006 FEIS and stipulated in the 2006 Programmatic Agreement, and as will be stipulated in the amended Programmatic Agreement, the new entrances would be designed in consultation with SHPO and, therefore, no adverse impacts are expected to result from them.

Phase 1 would also include emergency platform ventilation exhaust grates within the moats adjacent to the Farley Building and grates located in the West 31st and West 33rd Street sidewalks adjacent to the Western Annex. The new platform ventilation grates are not a new Project element and would be the same as assessed in the 2006 FEIS. Like the new Eighth Avenue entrances, the platform ventilation grates would be designed in consultation with SHPO and, therefore, no adverse impacts are expected to result from them.

## **FARLEY COMPLEX—PHASE 2**

Overall, like the project design assessed in the FEIS, it is expected that Phase 2 of the Project would not have any significant adverse impacts on the Farley Complex. Design elements that would avoid or minimize the potential for adverse impacts on the Farley Complex include efforts made to limit the removal of masonry, design of the Intermodal Hall and train concourse roofs so that they would not be visible from the surrounding streets, the clear differentiation between new and historic building components, and treatment of significant interior spaces in a manner sensitive to the building's original architectural design. Additional project elements that would have beneficial effects on the Farley Complex include continued USPS use of portions of the building, an extensive restoration program of the Farley Complex exterior, and adaptive reuse of the historic building as a station designed to reference the former Pennsylvania Station with a light-filled and spacious train concourse and Intermodal Hall. In addition, the amended Programmatic Agreement, like the 2006 Programmatic Agreement, will establish a process for evaluating the impacts on the Farley Complex caused by the Project. In order to ensure that the Project will not cause adverse impacts to the Farley Complex, under the amended Programmatic Agreement the final design of the Project would be developed in consultation among the FRA, Venture, ESDC, MSDC, PANYNJ, and SHPO to ensure compatibility with the historic character of the building. In addition, construction protection measures would be developed and implemented in consultation with SHPO to avoid adverse impacts on the Farley Complex exterior and the interior spaces to be preserved as part of the Project. Further, the adaptive reuse project and the restoration program would have overall beneficial effects on the Farley Complex.

ESDC has presented the preliminary conceptual design for the Project to SHPO and has consulted with SHPO with respect to that design. Based upon information received as a result of such consultation and discussions, SHPO indicated in a letter dated January 5, 2010 that no significant adverse impacts are expected to be caused to the Farley Complex, assuming the final design is developed in consultation with SHPO. The framework for this ongoing consultation process will be set forth in the amended Programmatic Agreement.

## *AMTRAK STATION OPTION*

### *Moynihan Station and USPS Facilities*

With the Amtrak Station Option, the proposed station design changes are not expected to result in any significant adverse impacts to the Farley Complex that were not identified in the 2006 FEIS, as the Project's design would be developed in consultation with SHPO in accordance with the amended Programmatic Agreement. The station and USPS components of the Project that both affect the Farley Complex and are new or different design elements than assessed in the 2006 FEIS are described below.

#### *Train Concourse and Waiting Area*

As was contemplated in the 2006 FEIS, a new large train concourse and waiting area would be constructed in the Farley Building interior atrium at the existing basement level (which is at the grade of Eighth Avenue). To construct the concourse, the non-original mezzanine, the original floor of the work room, and a portion of the basement floor would be removed so that the space would have greater height. Above, there would be a new, glazed roof. As currently contemplated, the existing roof system would be removed and the new roof would be a vault with a light metal structure that would rise above the roof line of the Farley Building but that would not be visible from the street. The 2006 FEIS also assessed a scenario that contemplated the complete removal of the existing roof system and the construction of a new roof, but that roof rose higher above the level of the Farley Building roof parapet and was expected to be visible above the Farley Complex from the surrounding streets. The brick-faced upper floor sections of the atrium facades would be restored, while the lower levels (which correspond to the walls of the existing work room floor and the basement) would have new surface finishes, as was contemplated in the 2006 FEIS.

As with the project assessed in the 2006 FEIS, the train concourse would not result in any adverse impacts on the Farley Building. Although an original element of the Farley Building would be removed, the work room roof has never been visible to the public, it has been altered over time, most significantly through the removal of original glazing, and the new roof would create a more open and light-filled train concourse. All new train concourse construction—new roof, ticketing windows, storefronts, and interior finishes—would be designed in consultation with ESDC, MSDC and SHPO to be compatible with the building's historic character. Further, the Project, like the project assessed in the 2006 FEIS, would create a publicly accessible space within the Farley Building atrium, an area of the building that is not currently open to the public.

#### *Intermodal Hall*

Like the project assessed in the 2006 FEIS, the current Project includes an Intermodal Hall between the Farley Building and the Western Annex in the location of the midblock loading area off West 33rd Street. As assessed in the 2006 FEIS, the existing roof over the loading area would be removed and the Intermodal Hall would be covered with a new glass and metal roof. The design and height of the new roof have not been determined but it would be a vault that would not rise above the Farley Complex's existing roof parapet. The Intermodal Hall would extend south to about the midpoint of the building, and a more narrow corridor lined with retail would continue to West 31st Street, thereby protecting more of the original building fabric created at the time of Annex construction. In comparison, the FEIS analyzed an Intermodal Hall that ran the full width of the Farley Complex and was covered with a new roof that rose above the roof height of the Farley Complex. That roof would have been visible from the surrounding streets and would have changed the exterior appearance of the Farley Complex. Inside, as currently proposed, the Intermodal Hall would have stairs and escalators to the train concourse

that would be located at a lower level, and there would be a passage between the Intermodal Hall and the USPS retail lobby on Eighth Avenue. The remaining portion of the original west façade of the Farley Building (found within the loading area off West 33rd Street and above the elevation of the existing roof) would be preserved and restored, as was assessed in the 2006 FEIS. While the interior volume of the loading area would be retained, the finishes and columns would not. New construction within the Intermodal Hall would be modern but would be referential to the original design of the Farley Building's west facade in terms of scale and detailing, as was contemplated in the 2006 FEIS.

The primary intercity station entrance, which would be ADA compliant, would be through the Intermodal Hall on West 33rd Street. This entrance would use the existing, arched truck exits located in the midblock façade section of the Farley Complex and, as currently contemplated, the metal window framing and grills within the arches would be removed. The portion of the moat adjacent to the Farley Building corner pavilion would be filled in and the existing pedestrian entrance into the corner pavilion would be retained. An area for taxi pick-ups and drop-offs would be located at the West 33rd Street entrance and the sidewalk adjacent to the Western Annex would be narrowed to create a lay-by lane. A secondary entrance to the Intermodal Hall would be located midblock on West 31st Street and the new building entrance would be through the existing three arched window openings. It is currently contemplated that portions of the metal window framing would be removed within the arches. The section of the moat adjacent to the West 31st Street entrance would be filled in and a new stairway would be created to the new midblock entrance. The existing pedestrian entrance into the Farley Building corner pavilion on West 31st Street would be renovated to provide ADA access. Each midblock entrance would have modern glass and metal canopies that would be largely freestanding with minimal ties to the facades. Overall, these entrance designs, which are similar to those assessed in the 2006 FEIS, would preserve the midblock façade sections and the midblock corner pavilions of the Farley Building and Western Annex.

As was concluded in the 2006 FEIS, it is not expected that the Intermodal Hall would have adverse impacts on the Farley Complex. It would be located within the existing space of the loading area and would be designed to minimize the removal of masonry on the West 33rd and West 31st Street facades. In addition, the new roof would be located below the existing roof parapet of the Farley Complex and would not be visible from the surrounding streets, unlike the proposed roof that was assessed in the 2006 FEIS. The final design of the Intermodal Hall, including the passage to the USPS retail lobby, would be developed in consultation with SHPO as stipulated in the amended Programmatic Agreement to ensure that it is compatible with the historic character of the Farley Complex.

#### *USPS Truck Access*

As was assessed in the 2006 FEIS, creation of the Intermodal Hall would replace the existing truck exits on West 33rd Street, and truck access through the Ninth Avenue arches would be discontinued. In addition, the existing row of exterior loading bays on West 31st Street adjacent to the new midblock station entrance would not be retained. To provide truck access into the Western Annex, the Project includes replacing all of the West 31st Street loading bays with a new interior loading area in the same location. (In addition to an interior loading area, the project assessed in the 2006 FEIS included a ramp to a below-grade loading area.) It is expected, as was concluded in the 2006 FEIS, that the reconstruction of the loading bays within the building and removal of the flanking masonry walls would not have an adverse effect on the Farley Complex, because the opening for the new loading area would correspond to the location of the existing loading bays. Although the existing, original metal canopy above the loading bays may be

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removed, the new entrance to the loading area would not remove masonry from the façade above the loading bays or from the flanking corner pavilions. In addition, the reconfigured loading bays would be designed in consultation with SHPO.

### *Continued USPS Use*

A key component of the Project (and of the project assessed in the 2006 FEIS) is the continued USPS use of the retail lobby. In addition, it is currently contemplated that USPS would continue to use some upper floor administrative offices in the Farley Building and in the Western Annex, loading areas in the Western Annex, and the tunnel connecting the Farley Complex to the USPS Morgan General Mail Facility and Annex. A new passage would be created between the historic postal retail lobby and the new station through the side lobby at the north end of the retail lobby. In comparison, the project plan assessed in the 2006 FEIS also included a passage from the retail lobby to the new station through the side lobby at the south end of the retail lobby. As currently contemplated, the postal museum in the north side lobby would remain in the Farley Building, but possibly would be moved to the side lobby at the south end of the retail lobby, at the discretion of the USPS. The transitional area between the north side lobby and the station would be designed in consultation with SHPO and compatibly designed with the historic interior spaces of the Farley Building, as was identified in the 2006 FEIS. As a result, adverse impacts would not be expected from creation of the transitional area between the historic USPS public spaces and the station. In addition, if it is determined that any project-related work is needed within the retail lobby, side lobbies, or rotundas, such work would be done in consultation with SHPO and in a manner that would not result in adverse impacts to those historic spaces, as is stipulated in a 2006 Memorandum of Agreement (MOA) among the USPS, ESDC, and SHPO and acknowledged by the Advisory Council for the transfer of the Farley Complex from the USPS to ESDC.

If the USPS determines to restore the retail lobby, the side lobbies, the flanking rotundas including the Lozowick murals, and the public stairs, independently of the Project, the restoration of those spaces would be subject to Section 106 review by USPS prior to its undertaking, in accordance with the 2006 USPS MOA.

### *Non-Station Commercial Redevelopment*

As was assessed in the 2006 FEIS, the Project would redevelop the Western Annex and portions of the Farley Building with commercial uses, with some space retained for USPS uses. The new commercial uses—a boutique hotel, retail uses, and a banqueting facility—are the same as those assessed in the 2006 FEIS. In addition, the physical alterations to the Farley Complex that would be required for the non-station commercial redevelopment of the Western Annex are the same as assessed in the 2006 FEIS. Further, the mural designed by Frederico Lebrun in the Western Annex's West 33rd Street lobby will be graphically and photographically documented by USPS prior to removal, in accordance with the 2006 USPS MOA and as identified in the 2006 FEIS. Therefore, there would be no new adverse impacts to the Farley Complex that were not identified in the 2006 FEIS from the new commercial uses, new entrances, interior reconstruction and reconfiguration, and creation of a pedestrian passage/courtyard through the Western Annex. In addition, the design plans for the new commercial spaces, entrances, and pedestrian passage would be designed in consultation with SHPO, as stipulated in the amended Programmatic Agreement.

*Proposed Station and Non-Station Commercial Signage*

A signage program for Moynihan Station and the new non-station commercial users within the Farley Complex would be implemented as part of the Project, although the details for such a program have not been determined. Therefore, to avoid adverse impacts to the Farley Complex, a signage program would be designed in consultation with SHPO, as stipulated in the amended Programmatic Agreement.

*OPEN STATION OPTION*

With the Open Station Option, the proposed station design changes are not expected to result in any significant adverse impacts to the Farley Complex that were not identified in the 2006 FEIS, as the Project's design would be developed in consultation with SHPO in accordance with the amended Programmatic Agreement. For the most part, the Open Station Option would affect the Farley Complex in the same manner as the Amtrak Station Option.

Under the Open Station Option, there would be a southern pedestrian passage at the postal lobby level between the historic USPS retail lobby and the Intermodal Hall through the side lobby at the south end of the retail lobby. This passage would correspond to a passage on the north side of the train hall that would also be created under the Amtrak Station Option. The transitional area between the south side lobby and the station (like the transitional area to the north side lobby) would be designed in consultation with SHPO and be compatibly designed with the historic interior spaces of the Farley Building, as was identified in the 2006 FEIS. As a result, adverse impacts would not be expected from creation of the transitional areas between the historic USPS public spaces and the station. In addition, if it is determined that any project-related work is needed within the retail lobby, side lobbies, or rotundas, such work would be done in consultation with SHPO and in a manner that would not result in adverse impacts to those historic spaces, as stipulated in the 2006 USPS MOA.

Under the Open Station Option, there would be a vehicular ramp to a below-grade loading area. This ramp would be on West 31st Street adjacent to reconfigured street-level loading docks. The 2006 FEIS assessed a loading scenario that included a ramp to a shared, below-grade loading area. Therefore, this ramp would not result in any significant adverse impacts that were not identified in the 2006 FEIS. In addition, the reconfigured loading docks and ramp would be designed in consultation with SHPO to avoid adverse impacts on the Farley Complex. \*



**A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to urban design and visual resources that were not previously identified in the 2006 FEIS. The regulatory context and methodology for this analysis are the same as described in the 2006 FEIS.

**B. CHANGES IN BACKGROUND CONDITIONS**

Changes in background conditions would not affect the conclusions of the FEIS related to urban design and visual resources. Development in the 400-foot study area would be similar to what was assessed in the 2006 FEIS and would increase the density of development around the Farley Complex.

**C. PROJECT DESIGN CHANGES****FARLEY COMPLEX-PHASE 1**

There would be no new significant adverse impacts to urban design and visual resources from the Project components that would be part of the Phase 1 development. Most of those components would affect below-grade infrastructure and would not affect any elements of the Farley Complex that contribute to it being a visual resource or that would be visible from the surrounding streets. Most of the Phase 1 components would, therefore, not affect the urban design of the Project site or study area.

Phase 1 would affect the Farley Complex with the creation of new at-grade entrances into the building from Eighth Avenue at the corners of West 33rd and West 31st Streets. These new entrances are not a new project element and would be the same as the Eighth Avenue entrances assessed in the 2006 FEIS. Therefore, these entrances would not result in new significant adverse impacts to urban design that were not identified in the 2006 FEIS. Further, as was concluded in the 2006 FEIS, these new entrances would not be expected to result in adverse impacts to the Farley Complex as a visual resource.

**FARLEY COMPLEX-PHASE 2**

The majority of Project modifications that have been made since publication of the 2006 FEIS are interior design changes to the Farley Complex related to the layout of Moynihan Station, the USPS facilities, and the non-station portions of the development. Therefore, the majority of Project modifications would not affect the urban design of the study area or visual resources, including the Farley Complex itself.

The most notable exterior design modification, which would occur under either the Amtrak Station or Open Station Options, would be the reduction in height of the new roofs over the Train Hall and the Intermodal Hall. As assessed in the 2006 FEIS, new metal and glass roofs would be created over those spaces, but those roofs have been lowered under the current Project design so that they would not be visible from the surrounding streets. In particular, the roof over the Intermodal Hall would be a vault that would no longer rise above the existing Farley Complex roofline. In addition, while the roof over the Train Hall would rise above the roofline, it would be lower than analyzed in the 2006 FEIS and would no longer be visible from surrounding streets. Whereas the FEIS concluded that the appearance of the Farley Building and Western Annex would change with the construction of the tall Intermodal Hall glass and metal skylight rising out of the middle of the complex, this analysis concludes that the appearance of the Farley Complex would not change, because the new roofs would not be visible from within the study area.

Other exterior changes to the Farley Complex—new entrances, reconfigured loading docks, glass enclosures within the moats adjacent to the Farley Building, and a new rooftop mechanical plant—would be the same as, or similar to, those Project features that were assessed in the 2006 FEIS. Therefore, the additional elements of the Project that would affect the appearance of the Farley Complex would not result in any new significant adverse impacts to urban design or visual resources that were not identified in the 2006 FEIS. \*

**A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse neighborhood character impacts that were not previously identified in the 2006 FEIS. The regulatory context and methodology for this analysis are the same as described in the 2006 FEIS.

**B. CHANGES IN BACKGROUND CONDITIONS**

As discussed in Section 2, “Analytical Framework,” in connection with the preparation of this Technical Memorandum, background conditions and the status of development projects anticipated for completion through 2015 have been updated for the FEIS study area. Overall, the total development anticipated to be completed by the Project’s 2015 Build year is similar to the total development anticipated to have been completed by 2010 (as analyzed in the 2006 FEIS) but with a smaller amount of office and community facility development and more hotel, residential, and retail development.

The 2006 FEIS examined neighborhood character within a ¼-mile study area. This radius encompasses portions of four districts and neighborhoods, including a superblock corridor that contains the Farley Complex, Hell’s Kitchen, the Garment Center/Herald Square commercial district (in which the Development Transfer Site is located), and the residential neighborhood of Chelsea. A variety of conditions characterize these four distinct neighborhoods, and this would continue to be the case with the anticipated changes in background conditions through 2015. The development over the Penn Station Rail Yard on Ninth Avenue between West 31st and 33rd Streets would continue to diminish the visibility of transportation uses in the area, add density and height on Ninth Avenue, and greatly strengthen the commercial character of the corridor. Hell’s Kitchen would be expected to strengthen as a cohesive residential and commercial neighborhood in the Future Without the Proposed Action. The character of the Chelsea neighborhood and the Garment Center/Herald Square commercial district still would not be expected to substantially change, although the Garment Center/Herald Square trend of replacement of some manufacturing uses with commercial and residential uses would be expected to continue.

In summary, the character of the various neighborhoods within the study area would remain similar to what was described in the 2006 FEIS, even though there would be more of a trend toward residential, hotel, and retail development than office uses with the changes in background conditions and the addition of different No Build projects. Therefore, the changes in background conditions since 2006 and future conditions anticipated through 2015 would not substantially alter the conclusions presented in the FEIS for neighborhood character.

## **C. PROJECT DESIGN CHANGES**

### **FARLEY COMPLEX—PHASE 1**

The proposed below-grade changes to the Project do not include any changes to its proposed uses, and would not require any new structures or expansion of building floor area. The proposed changes would modify the Farley Building to accommodate the proposed passenger rail uses—as anticipated in the 2006 FEIS—although the configuration and design of these modifications would be somewhat different than previously analyzed. Therefore, the proposed below-grade changes would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to neighborhood character.

### **FARLEY COMPLEX—PHASE 2**

#### *AMTRAK STATION OPTION*

The proposed changes under the Amtrak Station Option would not involve any alterations to the overall program of uses for the Project. Although the primary occupant of the station would change, as would some design elements, these changes would not require any new structures or expansion of building floor area. The Amtrak Station Option would be expected to improve the appearance and activity level of the Eighth and Ninth Avenue streetscapes and attract new office workers, residents, and visitors to the project site and surrounding area who would utilize the neighborhood streets. As in the 2006 FEIS, the proposed changes are anticipated to improve the neighborhood character of the area immediately surrounding the Farley Complex between West 31st and West 34th Streets and Eighth and Ninth Avenue. The Amtrak Station Option would not introduce any new economic activities to the study area or alter existing economic patterns, and it would not directly displace any uses or properties. All of the proposed uses are well established and present in the study area that is characterized by a dense and diverse amount of economic activity in and around Penn Station and the Farley Complex. The Amtrak Station Option also would have a beneficial effect on the neighborhood character of Hell's Kitchen as the proposed Moynihan Station would provide new transit uses to support the existing and emerging residential uses in the area. Although the Amtrak Station Option would be anticipated to result in a slight increase in traffic in the area immediately surrounding the Farley Complex, this would not result in a significant adverse impact on neighborhood character. Similarly, noise levels would continue to be at typically high levels associated with a midtown urban location.

In summary, while the Amtrak Station Option, like the Project assessed in the 2006 FEIS, would bring physical changes to the Farley Building, new uses to the site, and generate increased activity at and around the site (i.e., additional traffic and pedestrian movements), these changes would not adversely affect neighborhood character. Therefore, the proposed changes under the Amtrak Station Option would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to neighborhood character.

#### *OPEN STATION OPTION*

The Open Station Option would be more similar in terms of station layout to the station design examined in the 2006 FEIS than would be the Amtrak Station Option. The non-station development portion of the Open Station Option would also be similar to the Amtrak Station Option, but there would be some minor differences in the layout of retail spaces on the street and concourse levels, a slightly different configuration of the retail entrances on West 31st and West

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33rd Streets, and a different configuration of elevators in the 32nd Street corridor between the Intermodal Hall and Ninth Avenue. In addition, the Open Station Option would include USPS space and a shared loading area on the main concourse level of the Western Annex in keeping with the design assessed in the 2006 FEIS.

The proposed changes under the Open Station Option would not involve any alterations to the overall program of uses for the Project and would not require any new structures or expansion of building floor area. The Open Station Option, like the Amtrak Station Option, would be expected to improve the appearance and activity level of the Eighth and Ninth Avenue streetscapes and attract new office workers, residents, and visitors to the project site and surrounding area who would utilize the neighborhood streets. As in the 2006 FEIS and as with the Amtrak Station Option, the proposed changes are anticipated to improve the neighborhood character of the area immediately surrounding the Farley Complex between West 31st and West 34th Streets and Eighth and Ninth Avenue. The Open Station Option would not introduce any new economic activities to the study area or alter existing economic patterns, and it would not directly displace any uses or properties. All of the proposed uses are well established and present in the study area that is characterized by a dense and diverse amount of economic activity in and around Penn Station and the Farley Complex. The Open Station Option, like the Amtrak Station Option, would also have a beneficial effect on the neighborhood character of Hell's Kitchen as the proposed Moynihan Station would provide new transit uses to support the existing and emerging residential uses in the area. Although the Open Station Option would be anticipated to result in a slight increase in traffic in the area immediately surrounding the Farley Complex, this would not result in a significant adverse impact on neighborhood character. Similarly, noise levels would continue to be at typically high levels associated with a midtown urban location.

In summary, while the Open Station Option, like the Amtrak Station Option and the project assessed in the 2006 FEIS, would bring physical changes to the Farley Building, new uses to the site, and generate increased activity at and around the site (i.e., additional traffic and pedestrian movements), these changes would not adversely affect neighborhood character. Therefore, the proposed changes under the Open Station Option would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to neighborhood character. \*

**A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts associated with hazardous materials that were not previously identified in the 2006 FEIS. The regulatory context and methodology for this analysis are the same as described in the 2006 FEIS.

**B. CHANGES IN BACKGROUND CONDITIONS**

The changes in background conditions, as described in Section 2, “Analytical Framework,” do not affect the conclusions of the 2006 FEIS related to hazardous materials.

**C. CHANGES RESULTING FROM THE PROJECT****FARLEY COMPLEX—PHASE 1**

The revisions to the Project components included in Phase 1—the pedestrian circulation elements associated with the West End Concourse, the 33rd Street Connector, and the project’s proposed vertical circulation elements—do not change the conclusion of the 2006 FEIS. As stated in the 2006 FEIS, with the implementation of appropriate measures including pre-construction surveys, implementation of Health and Safety Plans during excavation or subsurface disturbance, demolition, and construction, and implementation of procedures to properly handle and manage any hazardous materials including lead based paint and asbestos, no significant adverse impacts would be expected to occur as a result of Phase 1 of the Project.

**FARLEY COMPLEX—PHASE 2**

The majority of project modifications that have been made since publication of the 2006 FEIS are interior design changes to the Farley Complex related to the layout of Moynihan Station, the USPS facilities, and the non-station development; these modifications would not affect the potential for hazardous materials impacts as a result of the Project. A new component of the Project, which may require subsurface work, is the development of Platform 12 but, as stated above and in the 2006 FEIS, development of the Project will require the implementation of appropriate measures including pre-construction surveys, implementation of Health and Safety Plans during excavation or subsurface disturbance, demolition, and construction, and implementation of procedures to properly handle and manage any hazardous materials including lead based paint and asbestos. Therefore, the Phase 2 development of the Project, like the Project assessed in the 2006 FEIS, is not expected to result in significant adverse impacts.

## **SUBSEQUENT PHASE I ENVIRONMENTAL SITE ASSESSMENT**

### *DEVELOPMENT TRANSFER SITE:*

In addition to the Phase I Environmental Site Assessments (ESAs) referenced in the 2006 FEIS, an additional Phase I ESA was completed at the Development Transfer Site in March 2007. The results of this study, which are summarized below, do not alter the conclusions of the 2006 FEIS regarding hazardous materials.

#### *Land-Use History*

Prior to the construction of One Penn Plaza, historic Sanborn maps from 1905 through 1951 indicated that the property was primarily occupied by storefront residential/hotel buildings. However, an auto yard occupied the eastern edge of the site fronting West 33rd Street.

#### *Potential for Subsurface Contamination*

##### *Subsurface Contaminants*

The auto yard mentioned above included underground storage tanks (gasoline). Similar installations were located further east on the block, associated with a bus garage. However, the 8-level underground parking garage excavated as part of the One Penn Plaza development would have removed any underground storage tanks or associated residual contamination in soil or bedrock.

##### *Asbestos-Containing Materials (ACM)*

Interviews with building management conducted during the ESA did not provide conclusive evidence of the presence or absence of ACM. Given the build year of 1966, it would be reasonable to assume that there may be some existing ACM. However, while subsequent renovations may have removed some or all of any original ACM, there is a possibility that ACM may exist within the structures of the parking garage. Appropriate procedures will be followed in removing ACM during demolition.

##### *Lead-Based Paint*

Based on interviews with building personnel, the building's structural steelwork is reportedly not coated with LBP. No other LBP issues were observed during the site inspection conducted for the ESA; however, there is a possibility that LBP may exist within the structures of the parking garage that were not accessible during the site inspection. If present, LBP will be removed in accordance with appropriate procedures.

##### *PCB-Containing Equipment*

Building management representatives were not aware of any PCB-containing equipment at the site. This is consistent with the findings of a previous Phase I ESA undertaken at One Penn Plaza by Warren & Panzer Engineers (2006).

##### *Mercury-Containing Switching Devices*

The steam station switches at One Penn Plaza contain mercury switches. No specific information was available for the Development Transfer Site; however, it is assumed that these materials may be present and will be removed in accordance with appropriate procedures.

##### *Petroleum Storage Tanks*

There are no petroleum storage tanks at the Development Transfer Site.

##### *Other Hazardous Materials*

There is no significant hazardous materials storage at the Development Transfer Site.

✱

## **Section 12: Infrastructure, Solid Waste and Sanitation Services, and Energy**

### **A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to infrastructure (water supply and sanitary sewers), solid waste, and energy services that were not previously identified in the 2006 FEIS. The regulatory context and methodology for this analysis are the same as described in the 2006 FEIS.

### **B. CHANGES IN BACKGROUND CONDITIONS**

Existing infrastructure resources and long term trends in terms of utility services and future demand forecasts have remained relatively unchanged or have been somewhat reduced compared to the findings of the 2006 FEIS, as noted below.

#### **WATER SUPPLY**

The existing water supply infrastructure serving the Farley Complex remains basically the same as analyzed in the 2006 FEIS. Overall water consumption in New York City continues to modestly decline with the introduction of additional water saving measures and as reported in the Western Rail Yards FEIS (October 2009). The annual water consumption in 2008 was at about 1.1 billion gallons per day (bgd) compared with 1.2 bgd in 2005, as reported in the 2006 FEIS. There are no background changes in water supply infrastructure that would result in new significant adverse impacts from the Project.

#### **SANITARY SEWAGE**

Like water supply, the sewage system serving the Farley Complex is unchanged from the 2006 FEIS. There has also been a stability or slight decline in overall flows to the North River Water Pollution Control Plant (WPCP) with a 2008 12-month average flow of 126 million gallons per day (mgd) compared with 127 mgd in 2005 as reported in the 2006 FEIS. The New York City Department of Environmental Protection (DEP) has approved and is committed to implementing a Hudson Yards Amended Drainage Plan that will further improve sewer flows from the west side towards the North River WPCP. There are no background changes in sanitary sewer services that would result in new significant adverse impacts from the Project.

#### **SOLID WASTE**

Solid waste and sanitation services remain basically the same as analyzed in the 2006 FEIS. Since completion of the 2006 FEIS, the City of New York adopted a new Solid Waste Management Plan (SWMP) in September 2006. The plan sets forth improvement efficiencies in handling solid waste and recycling programs and establishes long term forecasts that would be inclusive of potential demand generated by the Project.



## **ENERGY**

New energy forecasts and energy policies continue to evolve and could affect the assessment of energy demand and ability to provide energy to the Project site compared with the 2006 FEIS. As noted in the Western Rail Yards FEIS, the New York Independent System Operator (NYISO), as the responsible body for overseeing the safe and reliable operation of the electric transmission system across the State of New York, performs an annual review of the electricity needs for the State, and monitors the system supply and distribution capabilities for adequacy to meet projected demand growth. NYISO in its *2009 Reliability Needs Assessment* for the period from 2009 through 2018 anticipates that the resources needed to meet the forecast electricity needs of New York will be adequate in 2018 and would therefore not alter the assessment of regional ability to provide energy to the proposed Project and, as in the 2006 FEIS, would not be expected to result in significant adverse impacts.

In addition, as noted in the 2006 FEIS, the project would comply with New York State Executive Order No. 111, which directs State agencies, State authorities, and other affected entities to be more energy efficient. Executive Order 111 states that a new building must improve energy efficiency by 20 per cent and major renovations must improve energy efficiency by 10 per cent relative to the State Energy Conservation Construction Code Requirements.

As a state entity, MSDC will also need to incorporate into the Project, as applicable, the requirements of the State Green Building Construction Act adopted in August 2009, which calls for the NYS Office of General Services (OGS) to issue regulations establishing green construction requirements and procedures for new state-owned buildings and substantial renovations of existing buildings. OGS has not promulgated new regulations as of this Technical Memorandum but future project planning and design would need to stay abreast of new requirements and their potential applicability to the Project.

In summary, changes in background conditions primarily further energy saving requirements or affirm the findings of the 2006 FEIS regarding the availability of energy infrastructure. Thus, there would be no new significant adverse impacts as a result of changes in background conditions.

## **C. PROJECT DESIGN CHANGES**

With the development program remaining essentially the same as analyzed in the 2006 FEIS in terms of the overall station size, station retail, and non-station development, the estimated increases in demand for water and sanitary sewer services, solid waste, and energy would remain unchanged (or would be reduced with the introduction of new demand reduction requirements as noted above). There could be small and largely negligible variations in demand between the various station options. The Farley Complex Phase 1 effort would introduce certain underground improvements earlier than the entire Project but would not alter the basic energy demand forecast for the overall Project.

Therefore, as set forth in the environmental findings of the 2006 FEIS, the proposed Project would not result in significant adverse impacts on infrastructure (water and sewer), solid waste and sanitation services, or energy. \*

## **A. INTRODUCTION**

This section of the Technical Memorandum presents the findings of detailed station circulation analyses conducted for the proposed Project. Much of the information presented below relies upon new technical analyses completed since the 2006 FEIS. The 2006 FEIS document utilized the findings of prior environmental assessments for previous versions of the Project to reaffirm the findings that new station elements would operate satisfactorily and there were no identified significant adverse impacts on internal station circulation.

With the continued evolution of station planning since 2006 up to the current proposed plan, ESDC/MSDC determined that an update of the circulation analysis is warranted. The update reflects changes to the background condition since 2006, as noted in Section 2, “Analytical Framework” of this Technical Memorandum, and specific design changes resulting from project planning. However, since the analysis is new compared with the 2006 FEIS, this section varies from the format of the other environmental analyses presented in this Technical Memorandum and presents the methodology of the detailed analysis.

## **B. OVERVIEW**

Rail passenger and pedestrian circulation conditions within the Penn Station complex, resulting from construction of the Project, were analyzed and compared with the results of prior analyses of pedestrian circulation conditions contained in the 2006 FEIS and the 1999 EA for the Project as contemplated at those times. The 1999 and 2006 documents determined that the respective designs of Moynihan Station studied in those analyses would not result in any significant adverse impacts to station pedestrian circulation conditions.

Both the 1999 EA and 2006 FEIS determined that the then-proposed Project would not generate significant adverse impacts to passenger circulation within the Penn Station complex. The Project, in both cases, was shown to deliver significant circulation benefits to rail passengers.

There are some differences in the plans for the Farley Complex under the current Project as compared to those on which the 2006 FEIS and 1999 EA were based. The program examined in the 1999 EA was based on Amtrak relocating to the Farley Building—similar to the Amtrak Station Option assessed in this Technical Memorandum. However, the physical configuration of public spaces at Level A and Level B of the proposed Moynihan Station was significantly different in 1999 from the current plans.

The 2006 FEIS analyses assumed that Amtrak would remain at its existing location in Penn Station and that the new passenger facilities at the Farley Complex would be used predominantly by commuters—similar to the Open Station Option assessed in this Technical Memorandum—though the configuration of the Moynihan Station Train Hall, West End Concourse, and interior vertical circulation elements were similar to the 1999 plans. The 2006 FEIS further concluded that the 1999 and 2006 plans were sufficiently similar that the findings of the 1999 EA—in

terms of the magnitude of transportation benefits for rail passengers and the lack of significant adverse impacts—would apply to the 2006 plan without the need for an independent analysis of interior station pedestrian circulation.

Given the passage of time, the differences in both existing and projected future railroad ridership from conditions examined in the 1999 EA, and the differences in the 2010 Moynihan Station physical plan as compared with previous versions of the plan, ESDC/MSDC determined that this assessment of the current Project should include an updated interior station pedestrian circulation analysis. However, the Project is not expected to significantly alter the patterns of pedestrian flows within the existing Penn Station between Eighth and Seventh Avenues. The number of rail passengers that are projected to be diverted to new Moynihan Station facilities in the Farley Complex is greater than the incremental volume of pedestrian trips that would be generated by development associated with the Project. Therefore, detailed analysis was limited to the portions of the Penn Station complex where new construction is planned—west of Eighth Avenue and in the vicinity of the Eighth Avenue Subway station. The previous data models of station-wide pedestrian circulation were updated to enable comparison of peak conditions at key points in the Penn Station complex for the current plan and projected rail traffic levels, as compared with the results of the previous analyses.

The Project features the reconstruction of the former mail-sorting room of the General Post Office at the Farley Building as a Train Hall for the use of rail passengers. Two options have been developed for the rail occupancy and use of the Moynihan Station Train Hall: the Amtrak Station Option and the Open Station Option. In both cases, the Train Hall would be used by both Amtrak and commuter passengers, though the most prominent use and the nature of associated facilities surrounding the train hall is different in the two options.

### **AMTRAK STATION OPTION**

All Amtrak boarding passengers would be served at the Train Hall, which would include ticketing, seated waiting areas, customer service facilities, comprehensive train information and escalators and elevators that lead directly to the train platforms. Amtrak passengers would board trains using the Train Hall escalators and elevators. The Train Hall would be a public open space; however, its western portion would be used primarily by Amtrak passengers for waiting and queuing, while the eastern portion would be available for commuters to wait for their trains and the posting of train departure information.

A large public space would be located immediately to the west of the Train Hall, containing a secure seated waiting room for Amtrak passengers, the Amtrak ticket office, ticket vending machines, customer service office and baggage check/claim facilities. A two-level corridor flanked by retail stores would lead westward towards Ninth Avenue through the Western Annex along the alignment of West 32nd Street. Amtrak support facilities and back-of-house functions would occupy the remainder of the space within the Western Annex basement, at the Train Hall level.

### **OPEN STATION OPTION**

The configuration of the Train Hall would be the same in this option, though there would be no special facilities provided for Amtrak passengers at Moynihan Station. On the Train Hall level, the public space and retail corridor to the west of the Train Hall would not be provided in this option, although a corridor would be located on the street level above as in the Amtrak Station Option. The Western Annex basement would be configured for the ongoing use of the U.S.

Postal Service, with truck loading and back-of-house functions located at this level to the west of the Train Hall.

The Train Hall would be usable by the passengers of any railroad operating at Penn Station. Train information boards would display comprehensive, up-to-date train information. Commuter and Amtrak tickets would be available from ticket vending machines.

## COMMON ELEMENTS

Most elements of the Project would be the same under both options. The Project includes refurbishment of the Diagonal Platform (Platform 12), previously used for mail handling, as a platform to serve Amtrak's Empire Line to upstate New York and, potentially, future Metro-North Hudson Line service, with direct escalator and elevator connections from the Train Hall. The Project includes the construction of an emergency egress concourse at the far west end of the station; under the Amtrak Station Option, this concourse would be larger to also facilitate baggage handling for Amtrak. The Project also would widen and extend the lower level West End Concourse, so that it runs the entire breadth of the station in the north-south direction and provides stairway access and direct subway connections for commuters using Platforms 3 through 11 (serving Tracks 5 through 21), and for Empire Line passengers using Platform 12. The West End Concourse extension would allow for future construction of pedestrian connections to Platforms 1 and 2 (serving Tracks 1 through 4) that are not contemplated as part of the Project. The 33rd Street mezzanine of the Eighth Avenue Subway 34th Street station would be reconstructed to improve pedestrian flows to and from the subway and to enhance the 33rd Street Connector passageway linking the Train Hall and West End Concourse with the other existing Penn Station concourses located between Eighth and Seventh Avenues.

The Project would provide a major increase in the number of stairs, escalators, and elevators serving the Penn Station platforms and a corresponding increase in the circulation capacity available to move passengers onto and off of the platforms. The Project would bring into balance the vertical circulation capacity at each of the station platforms, specifically addressing existing deficiencies on the western ends of Platforms 3 through 6 (serving Tracks 5 through 12). **Table 13-1** summarizes the extent of these platform access improvements, comparing existing conditions with the proposed facility following completion of the Project.

**Table 13-1**  
**Vertical Circulation and Egress Capacity**  
**Improvements**

	Existing	With the Project
<b>Platform Vertical Circulation – Overall</b>		
Platform Stairs and Escalators to West End Concourse	8	17
Platform Escalators to Farley Train Hall	0	14
Platform Stairs and Escalators, Rest of Station	74	74
Platform Escalators, total	30	44
Platform Stairs, total	52	61
Platform Stairs and Escalators, total	82	105
Emergency Egress Stairs (not included in above)	0	6
Passenger Elevators	17	24
Service Elevators	6	13
Average Egress Capacity per platform, entire station (peds/min)	670	853
<b>Platform Vertical Circulation – Platforms 3-6*</b>		
Platform Stairs and Escalators, Platforms 3-6**	22	38
Average Egress Capacity per platform, Platforms 3-6** (peds/min)	452	832

**Table 13-1 (cont'd)**  
**Vertical Circulation and Egress Capacity**  
**Improvements**

	Existing	With the Project
<b>Level A-to-Level B Circulation</b>		
No. of escalators	5	9
No. of stairways (6 ft. width equivalent)	11	17
Passenger Elevators	2	4
Vertical circulation capacity (peds/min)	1,530	2,470
<b>Egress Capacity to Street Level</b>		
Number of station street level entrances	7	12
Egress capacity (peds/min)	2,200	3,100
<b>Note:</b> *These are the platforms with the greatest existing deficiencies in platform access. **Platforms 3-6 serve Tracks 5 – 12.		

## C. METHODOLOGY AND RAILROAD RIDERSHIP

For this Technical Memorandum, the analysis of pedestrian circulation conditions within the Penn Station complex followed the general methodology and approach used to prepare the 1999 EA.

### LEVEL OF SERVICE FOR STATION PEDESTRIAN CIRCULATION

The primary performance measure that was used to determine the adequacy of pedestrian circulation facilities within the station was peak Level of Service (LOS), as defined by Fruin<sup>1</sup>, which describes the peak degree of congestion at key locations within the train station. The general characteristics of the six levels of service defined by Fruin for stairways, corridors, and passageways are described below. The difference between each of the six levels is the freedom to choose walking speed, the ability to bypass slower moving pedestrians, and ease of counterflow movements at pedestrian traffic concentrations. Brief descriptions of each LOS are provided below, and the quantitative LOS thresholds are presented in **Table 13-2**:

- At LOS A and B, there is sufficient area to allow pedestrians to freely select walking speed and bypass slower moving pedestrians. When cross flow and reverse flow movement exists, minor conflicts may occur. There are no severe peak concentrations. Volume-to-capacity (V/C) ratios for LOS A range from 0.00 to 0.45, while for LOS B they range from 0.45 to 0.70.
- At LOS C, pedestrian movement is fluid although somewhat restricted. It provides sufficient room for standing without personal contact. Circulation through queuing areas, however, would require adjustment to walking speed. V/C ratios range from 0.70 to 1.00.
- At LOS D, walking speed is restricted and reduced. Reverse flow and cross flow movement is severely restricted due to congestion and difficulty in bypassing slower moving pedestrians. These conditions are common in many Manhattan locations during peak periods and represent somewhat congested conditions with V/C ratios ranging from 1.00 to 1.33.
- LOS E and F represent severe congestion with LOS E V/C ratios ranging from 1.33 to 1.67. Walking speed is restricted and there is insufficient area to bypass others and contraflow movement is difficult. LOS F is “bumper to bumper” pedestrian flow, with forward progress achievable only through shuffling, and with pedestrian queues forming.

<sup>1</sup> John J. Fruin, Pedestrian Planning and Design, Revised Edition, Elevator World, Inc., 1987

## Section 13: Station Circulation

The flow conditions used to measure level of service differ slightly between the environmental analyses to estimate the extent of any significant adverse impact, and the design analyses that are intended to achieve a desired level of service under estimated future peak conditions. These criteria are summarized in **Table 13-3**. For purposes of this Technical Memorandum, the average condition over the peak 15 minute period within the 8:00 to 9:00 am and 5:00 to 6:00 pm weekday peak hours was used to estimate level of service.

**Table 13-4** summarizes the LOS thresholds that will be used to determine the significance of any adverse impacts.

**Table 13-2**  
**Pedestrian Level of Service Standards**

	Flow Rates/ Occupancies	Volume/ Capacity Ratio
<b>Corridors and Ramps</b>		
LOS A (Unrestricted)	≤7 p/m/ft	≤0.47
LOS B (Slightly restricted)	7-10 p/m/ft	0.47 – 0.67
LOS C (Restricted, but fluid)	10-15 p/m/ft	0.67 – 1.00
LOS D (Restricted, necessary to continually alter walking speed)	15-20 p/m/ft	1.00 – 1.33
LOS E (Severely restricted)	20-25 p/m/ft	1.33 – 1.67
LOS F (Forward progress only by shuffling, no reverse movement possible)	≥25 p/m/ft	≥1.67
<b>Stairways</b>		
LOS A (Unrestricted)	≤5 p/m/ft	≤0.50
LOS B (Slightly restricted, no impact on speed)	5-7 p/m/ft	0.50 – 0.70
LOS C (Speeds reduced, difficult to pass)	7-10 p/m/ft	0.70 – 1.00
LOS D (Restricted, reverse flow conflicts)	10-13 p/m/ft	1.00 – 1.30
LOS E (Severely restricted)	13-17 p/m/ft	1.30 – 1.70
LOS F (Many stoppages, no discernable flow)	≥17 p/m/ft	≥1.70
<b>Queuing</b>		
LOS A (Free circulation)	≤8 p/100sf	≤0.57
LOS B (Restricted circulation without affecting queues)	8 - 10 p/100sf	0.57 – 0.70
LOS C (Restricted circulation affecting people in queue)	10 - 14 p/100sf	0.70 – 1.00
LOS D (Severely restricted circulation, no personal contact)	14 - 33 p/100sf	1.00 – 2.36
LOS E (No circulation, personal contact unavoidable)	33 - 50 p/100sf	2.36 – 3.57
LOS F (Close physical contact, unsustainable)	≥50 p/100sf	≥3.57
<b>Note:</b> For purposes of calculating the volume-to-capacity ratio, capacity ( $V/C=1.0$ ) is defined to be the threshold between Levels of Service C and D; the ratio is calculated by dividing the flow rate or occupancy level by the corresponding Level of Service C/D threshold value.		
<b>Source:</b> John J. Fruin, <i>Pedestrian Planning and Design, Revised Edition</i> , Elevator World, Inc., 1987		

**Table 13-3**  
**Pedestrian Loading Assumptions**

Level of Traffic, AM and PM peak hour – Rail passengers	Existing (2008) and projected 2015 passenger volumes
Level of Traffic, AM and PM peak hour – Other pedestrians within Station	Existing (2008) and projected 2015 traffic, based on site-specific development projections and general background growth assumptions
Peak loading condition	Average over peak 15 minutes, AM and PM weekday peaks
Train operating conditions	Normal operations with trains on or close to schedule*
<b>Note:</b> * With normal operating conditions as defined by the railroads, based on historical Penn Station operating data.	

**Table 13-4**

**Level of Service Standards for Environmental Impact Assessment**

	<b>Absolute Condition for No Significant Impact</b>	<b>Build Condition Relative to No Build Condition, if No Build Condition Generates Significant Impact</b>
Corridors, ramps and stairs within station concourse areas, station entrances/exits at street level	LOS C/D $\leq 15.5$ p/m/ft.* corridor/ramp $\leq 10.5$ p/m/ft.* stair/doorway	No significant impact if LOS remains within same LOS grade (e.g., both No Build and Build are at LOS D)
Train Halls and areas of passenger accumulation Portion used for queuing: (e.g., waiting and boarding zones) Portion used for circulation:	LOS C/D $\geq 6.5$ sf/p** for queuing <i>Same as corridor standard</i>	No significant impact if LOS remains within same LOS grade (e.g., both No Build and Build are at LOS D)
Escalators within station concourse areas	Operate during peak 15 minutes without queues (i.e., LOS E or better) $\leq 75$ p/m commuter, 70 p/m Amtrak*** <i>2-lane escalator at 90 ft/min.</i>	No significant impact if LOS for Build condition is better than LOS F
<b>Notes:</b> * Based on effective width, which is assumed to be equal to actual width, minus the width of any interior obstructions, minus an allowance for edge conditions, which vary depending upon the type and configuration of facility. On corridors/ramps, an edge deduction of one to two feet of effective width typically is taken into account for the propensity of pedestrians to avoid walking adjacent to corridor walls; on stairways, the edge deduction depends upon the number and location of handrails and typically is on the order of one foot. ** Based on effective area, net of interior obstructions. *** Maximum escalator processing rates for the sizes and speeds of escalators at Penn Station as verified by field survey during weekday peak periods.		

When computing the width of a corridor or stairway for purposes of calculating peak level of service, it is necessary to consider the effective width, which is less than the full measured width. Deductions are made for obstructions within the space, such as structural columns, signs or handrails. Additional deductions are made to reflect the observed behavior of pedestrians, who typically leave a buffer between themselves and a wall or obstruction when walking. The effective width of a walkway is based on the narrowest point minus 2 feet, in addition to any deductions for intermediate columns or obstructions. Effective widths of stairwells are assumed to be 1 foot less than the actual width, to account for handrails and similar obstructions.

In addition, the effective widths of circulation elements are adjusted to reflect the reduced capacity available when pedestrians are moving in opposite directions. Counterflow traffic tends to generate pedestrian “friction” within such corridors and on stairways, which can reduce the overall level of service. When one-half to two-thirds of the pedestrian flow is in one direction, capacity is reduced by 10 percent. When more than two-thirds of the pedestrian flow is in one direction, a 20 percent reduction in capacity is assumed. No deduction is made for facilities where flow is entirely in one direction of travel. These friction factors were derived from empirical observations of pedestrian flows in congested transit station environments within New York City and have been adopted by NYC Transit in its station planning guidelines.

## PLATFORM VERTICAL CIRCULATION

Platform stairs and escalators are subjected to different loading conditions than stairs and escalators at the concourse levels of the station. Demand occurs in “pulses” as the trains arrive and depart. Immediately following a train arrival or the posting and announcement of a departing train’s track assignment, the stairs and escalators at that platform would operate at their

maximum practical throughput capacity until the queues of passengers dissipate. The durations of these queues—at platform/track level following train arrivals, and at concourse level when the boarding process for trains begins—are the appropriate measure of platform vertical circulation performance. Platform clearance times under a typical peak loading condition (arrival of a full-length, fully-loaded commuter train) were calculated for each station platform for the No Build and Build conditions. The No Build condition would be the same as existing conditions, since no new platform vertical circulation elements are planned by the railroads in the 2015 timeframe aside from those proposed as part of the Project.

While such analyses of rail station platform access are not typically a part of environmental impact assessment documents for transportation terminal projects in New York State and New York City, this Technical Memorandum summarizes platform clearance and access conditions for the Build and No Build conditions, in order to describe the level of improvement that would be realized with the Project.

## **ENVIRONMENTAL IMPACT ASSESSMENT**

Virtually all of the proposed station construction within the Farley Complex would provide new pedestrian circulation facilities—usually in locations and with configurations that are different from existing conditions in Penn Station. Pedestrian circulation analyses were undertaken to confirm that the projected peak level of service within these facilities meets the environmental impact assessment criteria defined in **Table 13-4**, shown above.

Where existing pedestrian circulation elements are retained in the concept plan, including locations where improvements are planned but where space is constrained by property limits or structural impediments, such as the west and east ramps within the 33rd Street Connector, projected peak levels of service are compared between the Build (with the Project) and No Build (without the Project) conditions to determine whether the Project would result in a significant worsening of conditions. These results also were compared with the equivalent results documented in the 2006 FEIS (based on the analysis contained in the 1999 EA), which concluded that the Project, as defined at that time, would not generate significant adverse impacts.

## **RAILROAD RIDERSHIP**

Estimates of existing (2008) and projected future (2015 No Build) ridership at Penn Station on the three railroads serving the station—Amtrak, LIRR, and NJT—are presented in **Table 13-5a**. Separate estimates of Amtrak's year 2015 ridership at the station are prepared for the 2015 Build condition for each of the two occupancy options—with and without Amtrak relocating its primary passenger-handling functions to the Farley Complex. These two estimates, presented in **Table 13-5b**, provide the basis for calculating peak levels of service and determining whether any significant adverse impacts are generated by the Project. The differences between the two Amtrak ridership estimates are explained below. These 2015 Build year estimates show continuing growth in rail passenger traffic on all three railroads. While these increases may continue for a few years beyond 2015, the opening of the LIRR East Side Access Project and the NJT ARC project in the period between 2015 and 2020 will create new rail terminal capacity in Manhattan that will absorb future growth and take the pressure off of the capacity-constrained facilities at Penn Station. Long-range regional travel demand forecasts show that rail passenger demand at Penn Station is projected to climb back to levels at or above the 2015 estimates by 2035.



**Table 13-5a**

**Existing And Projected 2015 No Build Railroad Ridership At Penn Station New York**

	EXISTING (2008)							NO BUILD (2015) [1]						
	Amtrak Acela	Amtrak Regional*	Amtrak Empire**	Amtrak Total	LIRR	NJT	Total	Amtrak Acela	Amtrak Regional*	Amtrak Empire**	Amtrak Total	LIRR	NJT	Total
Annual	2,259,692	4,865,418	1,387,623	8,512,733	66,274,000	47,641,000	122,427,733	2,924,000	6,262,000	1,782,000	10,968,000	83,496,000	54,268,000	148,732,000
Daily to Annual Factor	248	289	292	277	284	284	284	248	289	292	277	284	284	283
Daily, Both Directions	9,120	16,860	4,750	30,730	233,360	167,750	431,840	11,800	21,700	6,100	39,600	294,000	191,083	524,683
Morning Peak Period														
Inbound (Alighting)														
Peak Period 6-10 AM	1,010	1,395	600	3,005	86,980	56,697	146,682	1,420	1,960	840	4,220	109,400	72,500	186,120
Peak Hour	420	815	260	1,495	35,710	24,182	61,387	630	1,230	390	2,250	45,900	32,800	80,950
Peak 15 Minutes				780	10,410	7,074	18,264				1,120	13,380	9,630	24,130
Outbound (Boarding's)														
Peak Period 6-10 AM	1,090	1,440	480	3,010	5,040	7,597	15,647	1,530	2,030	680	4,240	8,090	12,200	24,530
Peak Hour	390	410	280	1,080	2,320	2,425	5,825	590	620	420	1,630	3,730	3,890	9,250
Peak 15 Minutes				440	740	999	2,179				630	1,190	1,600	3,420
Total, Both Directions														
Peak Period 6-10 AM	2,100	2,835	1,080	6,015	92,020	64,294	162,329	2,950	3,990	1,520	8,460	117,490	84,700	210,650
Peak Hour	810	1,225	540	2,575	38,030	26,607	67,212	1,220	1,850	810	3,880	49,630	36,690	90,200
Peak 15 Minutes				1,220	11,150	8,073	20,443				1,750	14,570	11,230	27,550
Evening Peak Period														
Inbound (Alighting)														
Peak Period 4-8 PM	1,160	1,760	510	3,430	9,110	11,175	23,715	1,630	2,480	720	4,830	14,630	17,940	37,400
Peak Hour	350	780	330	1,460	3,380	3,567	8,407	530	1,170	500	2,200	5,430	5,730	13,360
Peak 15 Minutes				610	1,190	1,676	3,476				880	1,910	2,690	5,480
Outbound (Boarding's)														
Peak Period 4-8 PM	1,260	2,550	720	4,530	73,520	46,901	124,951	1,770	3,590	1,010	6,370	92,500	63,800	162,670
Peak Hour	450	1,000	240	1,690	29,710	20,484	51,884	680	1,500	360	2,540	38,200	28,000	68,740
Peak 15 Minutes				710	8,260	6,016	14,986				1,020	10,600	8,220	19,840
Total, Both Directions														
Peak Period 4-8 PM	2,420	4,310	1,230	7,960	82,630	58,076	148,666	3,400	6,070	1,730	11,200	107,130	81,740	200,070
Peak Hour	800	1,780	570	3,150	33,090	24,051	60,291	1,210	2,670	860	4,740	43,630	33,730	82,100
Peak 15 Minutes				1,320	9,450	7,692	18,462				1,900	12,510	10,910	25,320
<b>Notes:</b> * Regional category includes Keystone corridor and long-distance intercity trains on the NEC spine. ** Empire category includes Adirondack, Maple Leaf and Lake Shore Limited passengers. [1] Baseline growth in Amtrak daily ridership assumed to be approximately 3.7% per year over seven years (2008-2015); peak period ridership growth at 5.0% per year; peak hour ridership growth at 6.0% per year.														

**Table 13-5b**

**Projected 2015 Railroad Ridership At Penn Station New York With the Project**

	2015 PROJECTED -- WITH THE PROJECT (BUILD) AMTRAK STATION OPTION							2015 PROJECTED -- WITH THE PROJECT (BUILD) OPEN STATION OPTION						
	Amtrak Acela [2]	Amtrak Regional* [2]	Amtrak Empire** [2] [3]	Amtrak Total	LIRR [4]	NJT [4]	Total	Amtrak Acela [2]	Amtrak Regional [2]	Amtrak Empire** [3]	Amtrak Total	LIRR [4]	NJT [4]	Total
Annual	3,072,000	6,580,000	2,921,000	12,573,000	83,496,000	54,268,000	150,337,000	2,924,000	6,262,000	2,782,000	11,968,000	83,496,000	54,268,000	149,732,000
Daily to Annual Factor	248	289	292	278	284	284	284	248	289	292	278	284	284	284
Daily, Both Directions	12,400	22,800	10,000	45,200	294,000	191,083	530,283	11,800	21,700	9,500	43,000	294,000	191,083	528,083
Morning Peak Period														
Inbound (Alighting)														
Peak Period 6-10 AM	1,500	2,100	1,400	5,000	109,400	72,500	186,900	1,420	1,960	1,300	4,680	109,400	72,500	186,580
Peak Hour	660	1,300	600	2,560	45,900	32,800	81,260	630	1,230	600	2,460	45,900	32,800	81,160
Peak 15 Minutes				2,220	13,380	9,630	25,230				2,130	13,380	9,630	25,140
Outbound (Boarding's)														
Peak Period 6-10 AM	1,600	2,900	1,100	5,600	8,090	12,200	25,890	1,530	2,030	1,050	4,610	8,090	12,200	24,900
Peak Hour	620	1,100	700	2,420	3,730	3,890	10,040	590	620	660	1,870	3,730	3,890	9,490
Peak 15 Minutes				1,250	1,190	1,600	4,040				970	1,190	1,600	3,760
Total, Both Directions														
Peak Period 6-10 AM	3,100	5,000	2,500	10,600	117,490	84,700	212,790	2,950	3,990	2,350	9,290	117,490	84,700	211,480
Peak Hour	1,280	2,400	1,300	4,980	49,630	36,690	91,300	1,220	1,850	1,260	4,330	49,630	36,690	90,650
Peak 15 Minutes				3,470	14,570	11,230	29,270				3,100	14,570	11,230	28,900
Evening Peak Period														
Inbound (Alighting)														
Peak Period 4-8 PM	1,710	2,940	1,200	5,850	14,630	17,940	38,420	1,630	2,480	1,130	5,240	14,630	17,940	37,810
Peak Hour	560	1,560	800	2,920	5,430	5,730	14,080	530	1,170	780	2,480	5,430	5,730	13,640
Peak 15 Minutes				1,740	1,910	2,690	6,340				1,480	1,910	2,690	6,080
Outbound (Boarding's)														
Peak Period 4-8 PM	1,860	3,770	1,700	7,330	92,500	63,800	163,630	1,770	3,590	1,600	6,960	92,500	63,800	163,260
Peak Hour	710	1,580	600	2,890	38,200	28,000	69,090	680	1,500	560	2,740	38,200	28,000	68,940
Peak 15 Minutes				2,030	10,600	8,220	20,850				1,920	10,600	8,220	20,740
Total, Both Directions														
Peak Period 4-8 PM	3,570	6,710	2,900	13,180	107,130	81,740	202,050	3,400	6,070	2,730	12,200	107,130	81,740	201,070
Peak Hour	1,270	3,140	1,400	5,810	43,630	33,730	83,170	1,210	2,670	1,340	5,220	43,630	33,730	82,580
Peak 15 Minutes				3,770	12,510	10,910	27,190				3,400	12,510	10,910	26,820

**Notes:**

\* Regional category includes Keystone corridor and long-distance intercity trains on the NEC spine.

\*\* Empire category includes Adirondack, Maple Leaf and Lake Shore Limited passengers.

[2] Effect of Project improvements on Amtrak Acela, Regional and Empire ridership assumed to be 5% over and above baseline (No Build) ridership level.

[3] Additional effect of implementing NYS HSR plan, increasing service to 18 daily frequencies (enabled by Project), assumed to be 56.3% per NYS Senate HSR Task Force Action Program (2004).

[4] Commuter rail (LIRR and NJT) passenger volumes assumed to be the same in the No Build and Build conditions (i.e., no significant induced demand effects associated with the Project).

### *EXISTING PASSENGER TRAFFIC*

Existing daily, peak period and peak hour railroad ridership data were obtained from LIRR, NJT and Amtrak. LIRR provided typical Spring and Fall 2008 train counts and Penn Station boarding and alighting volumes in 15-minute intervals. Amtrak furnished FY2008 annual boarding and alighting volumes by train at Penn Station, along with aggregated seasonal and day-of-week peaking data that provided the basis for an estimate of Amtrak daily, peak period and peak hour ridership on a typical busy day. NJT provided a count-based estimate of 2008 morning peak period ridership at Penn Station, which enabled prior 2006 count data to be factored to approximate 2008 conditions.

For each of the railroads, estimates of existing weekday morning and evening peak volumes and levels of service within the station concourses and adjacent subway stations were prepared based on the 2008 count-based data furnished by the railroads, adjusted as necessary by peaking and directional factors developed from previous count surveys. As in the earlier environmental assessments at Penn Station, the “design day” is considered to be a typical Fall or Spring weekday, with the peak periods occurring in the morning between 6:00 am and 10:00 am and again in the evening between 4:00 pm and 8:00 pm. Tests for significant environmental impacts are based on average conditions within the peak 15 minute period, which falls roughly in the middle of these four-hour peak periods.

The 2008 existing condition volumes within the 33rd Street Connector were developed from an extensive count program within the Eighth Avenue subway station conducted during continued Project planning subsequent to completion of the 2006 FEIS. These 2006 and 2007 volumes were increased to 2008 levels based on subway station turnstile counts.

### *PROJECTED FUTURE PASSENGER TRAFFIC*

Year 2015 projections of future railroad weekday ridership at Penn Station (daily, AM/PM peak period, AM/PM peak hour boarding and alighting volumes) were obtained from LIRR and were derived for Amtrak and NJT based on scaling and interpolating previous projections. The near-term pace of ridership growth is assumed to be slower than recent historical experience and slower than previously forecast, as a result of the current economic downturn, the slowed pace of residential and commercial development in the Manhattan central business district and commuter suburbs, and the longer anticipated timeframe for implementing planned major capital investments in rail system fleet and facilities. However, the estimates still incorporate significant growth over and above 2008 levels, so that the environmental analysis remains sufficiently conservative and represents reasonable worst case conditions (in terms of station pedestrian congestion) for the Build year of 2015.

### *ADDITIONAL RAILROAD RIDERSHIP GENERATED BY THE PROJECT*

#### *Commuter Rail—LIRR and NJT*

The level of commuter ridership at Penn Station is not expected to be as sensitive to the quality of the station environment as it is to the quantity of rail service provided. The Project would not directly affect the level of commuter rail service at the station in the 2015 Build year, and more than three-quarters of Penn Station’s commuters would continue to use the existing Penn Station concourses and facilities. Therefore, there is no difference in the estimated levels of commuter ridership between the 2015 No Build and Build conditions. The non-station development that is part of the Project will generate a small number of incremental trips on the commuter railroads (less than 100 in each direction in the 2015 evening peak hour, as documented in Section 14). When distributed among the multiple railroads, concourses and walking paths that will exist within

the Penn Station complex in the Build condition, this increase is too small to generate significant incremental impacts on pedestrian flow and does not warrant an adjustment to the 2015 Build projections for LIRR and NJT.

#### *Amtrak Intercity*

The Project would significantly improve conditions within the station for Amtrak passengers. Therefore, estimated Amtrak ridership has been increased for the 2015 Build condition, compared with the 2015 No Build condition, to reflect the boost in ridership that is anticipated to occur as a result of improved station facilities.

The incremental Amtrak ridership in the 2015 Build condition has two components, which get applied differently for each of the two occupancy options:

- Additional Amtrak Empire Line ridership resulting from improvements to the frequency, reliability and speed of Empire Corridor service that would be enabled by the activation of Platform 12 (applied to both the Amtrak Station and Open Station Options). Platform 12 may also potentially be used for future Metro-North Hudson Line service.

For the Empire Service, a ridership increment was estimated to reflect the effects of service improvements in the corridor that would be enabled by the rehabilitation of Platform 12 which would be accessed from the Farley Building and the street west of Eighth Avenue, and which could be dedicated for use exclusively by Empire Service trains and passengers.

A 2004 study by the New York State Senate High-Speed Rail Task Force evaluated a range of service and investment options in the Empire corridor. This study indicated that an increase in service on the Empire Line from 13 to 18 daily round trips, coupled with incrementally better run times and improved reliability, would result in a 56.3 percent gain in ridership over and above the existing service baseline.

The 2015 Build projections for Amtrak Empire service therefore apply an additional 56.3 percent increase in ridership in addition to the estimated 5 percent ridership increase attributable to an upgraded station environment. Such an improvement in service within the 2015 timeframe is a conservative assumption, considering that other significant capital investment would be needed over and above the Project for rolling stock and rail infrastructure. However, it represents an appropriately conservative assumption for purposes of examining the potential for significant environmental impacts of the Project, including the activation of Platform 12.

- New Amtrak passenger trips generated by having larger and better facilities for all intercity passengers at the Moynihan Station Train Hall (applied only to the Amtrak Station Option).

The 1999 EA included an incremental ridership gain of 5 percent for Amtrak intercity service at Penn Station associated with developing substantially improved passenger facilities at the Farley Building. This analysis uses the same assumption for the Amtrak Station Option that builds similar new facilities for Amtrak at the Farley Complex. The five percent increment is not added in the case of the Open Station Option, since Amtrak's primary passenger-handling functions would be retained at the existing Penn Station main concourse.

#### *NON-RAILROAD PEDESTRIAN TRAFFIC WITHIN THE PENN STATION COMPLEX*

##### *Existing Conditions*

The majority of pedestrians within the Penn Station complex at any given time are passengers of the three railroads that operate at the station. A portion of the total foot traffic, however,

comprises pedestrians who are not rail passengers, including local workers and residents who take subways or buses to get to and from the Farley Complex or to pass through the station complex, patrons of retail and food service establishments within the station complex, and pedestrians walking between Eighth and Ninth Avenues or between West 33rd and West 31st Streets who prefer to walk indoors through the station concourses. Based on historical count data, these trips account for 10 to 15 percent of all pedestrian traffic in corridors that directly serve the subway stations (e.g., Locations #7 and #8 on **Figure 13-1**), and a lower percentage within the interior of the train station.

### *Additional Non-Railroad Pedestrian Trips Generated by the Project*

The Project would directly affect employment levels and retail activity and, consequently, the level of pedestrian trip-making at Penn Station. The magnitude of this traffic would be small relative to the volume of rail passenger traffic at the Penn Station complex, but assumptions have been made in this Technical Memorandum about the magnitude of these trips within the morning and evening peak hours at locations within the Penn Station complex. These trip generation and mode split assumptions are documented in Section 14: "Traffic and Parking."

USPS employment at the Farley Complex has been reduced since the 2006 FEIS as a result of consolidation of mail sorting operations at the Morgan Annex. USPS operations are expected to remain at the current levels for the foreseeable future. The space vacated by USPS would be replaced under the Project by railroad, retail and other commercial development in the Farley Complex. In addition, the Project includes the redevelopment of the Development Transfer Site, which would generate additional pedestrian trips at the Penn Station complex.

This analysis also assesses trips that would pass through the Eighth Avenue Subway station, which would be affected by the expansion of the 33rd Street Connector that is proposed as part of the Project, the existing Penn Station 33rd Street Connecting Concourse, and the proposed Moynihan Station concourses. On average, these additional Project-generated trips would represent less than ten percent of the total peak volume within corridors and on stairways within the Penn Station complex.

### *Projected Growth in Other Non-Railroad Passenger Traffic*

Independently of the proposed Project, background growth in non-railroad pedestrian traffic is assumed to occur at a rate of 0.5 percent per year in the period between 2008 and 2015 and is included within the 2015 No Build pedestrian traffic estimates. This growth is attributable to the general long-term trend of gradual increasing population and employment within the Manhattan central business district. An additional increment of pedestrian traffic can be attributed to specific major development projects (not related to the Project) that are projected to be completed between 2008 and 2015 in the immediate vicinity of the Penn Station complex. Some of these new commuters will be railroad riders and are included within the projected increases in railroad ridership tabulated above. Others will walk through portions of the Penn Station complex on their way to and from the subways; an allowance for these additional pedestrian trips is included within the 2015 No Build estimates.

## **D. EXISTING CONDITIONS**

Penn Station is the most heavily used and most crowded rail passenger station in the U.S., handling on the order of 430,000 daily rail passenger trips, in addition to approximately 100,000 daily pedestrian trips by subway users, office building workers, Madison Square Garden patrons

and other pedestrians who are not railroad riders. The station serves as both New York's intercity rail terminal for Amtrak and the only Manhattan rail terminal for NJT and LIRR. The bulk of the riders on the latter two carriers are commuters from the suburbs to workplaces in the Manhattan central business district. As a result, usage of the station is heavily peaked in the early morning and late afternoon hours. During the commuter peak periods, commuter volumes exceed those of Amtrak intercity riders by more than a factor of 10. The station operates 24 hours a day, 365 days per year. The "train shed" at track level covers four full city blocks, from West 31st Street to West 33rd Street and Seventh Avenue to Ninth Avenue. The train platforms have various lengths but generally extend from Seventh Avenue to a point between Eighth and Ninth Avenues. The three platforms in the center of the station stretch almost all the way to Ninth Avenue. Nevertheless, the existing concourses, subway connections and street level station entrances are skewed towards the eastern ends of the platforms, located exclusively between Seventh Avenue and the western edge of Eighth Avenue.

## **PHYSICAL CONFIGURATION AND USAGE**

### *PLATFORM LEVEL*

On the lowest level of Penn Station are 11 platforms of various lengths serving 21 tracks, both numbered from south to north. Tracks 1 through 4 (accessed via Platforms 1 and 2) on the south side of the station are stub-ended on the east end of the station at Seventh Avenue so they provide service only to and from New Jersey to the west. The remaining tracks 5 through 21 are "through tracks" with connections at both ends.

Track usage by the three rail operators is influenced by the configuration of tracks and tunnels leading to the station and is divided according to agreements between the two commuter railroads and Amtrak. NJT uses tracks 1 through 4 exclusively. Tracks 5 through 12 are used by both Amtrak and NJT. Amtrak, NJT and LIRR all share tracks 13 through 16, with usage varying by time of day (LIRR uses these tracks during weekday morning and evening peak periods, while all three railroads use them at other times). The LIRR has exclusive use of tracks 17 through 21. All tracks are equipped with AC overhead catenary power, the system used by Amtrak Northeast Corridor and NJT trains. Tracks 5 through 21 are also equipped with DC third rail to accommodate the overriding third-rail contact shoes used by LIRR and Amtrak Empire Service trains. Train dispatching at Penn Station is performed by Penn Station Central Control, a joint venture owned and operated by Amtrak and the LIRR.

Passengers arriving or departing on any of the station's 11 platforms (and 21 associated tracks) can use multiple stairs or escalators to and from the Level A concourse, located one level above the platforms. In addition, there are direct stairs and/or escalators between Platforms 2 through 9 (serving Tracks 3 through 17) and the Main Concourse on the upper level (Level B). Platforms 1 and 2 (serving Tracks 1 through 4) have a set of stairs that leads to a connecting passageway on Level B (midway between Seventh and Eighth Avenues next to 31st Street). These stairs are only available during weekday peak periods as the connecting passageway runs through Amtrak back-of-house operations. Platforms 10 and 11 (serving Tracks 18 and 19, and 20 and 21, respectively) are accessible only from Level A.

### *LEVEL A*

The first Level above the platforms, designated Level A, includes the primary access to LIRR trains and NJT's Seventh Avenue Concourse. Level A also provides direct underground

connections to adjacent subway stations on the Eighth Avenue (A, C & E) and Seventh Avenue (1, 2 & 3) NYC Transit subway lines. The general layout of Level A is shown in **Figure 13-1**. The LIRR ticket office, LIRR waiting room, retail shopping, and various crew quarters and support facilities for the three railroads are all located on Level A.

A series of interconnected concourses and corridors span the entire station at Level A. Arriving passengers on all three railroads can ascend to any of five concourse areas on Level A, all of which are oriented in a north-south direction:

- the LIRR West End Concourse (west of Eighth Avenue, serving Tracks 13-21);
- the “Exit Concourse” (east of Eighth Avenue, serving all 21 station tracks, its name derives from that fact that this was originally the arrivals area for the Pennsylvania Railroad when Penn Station first opened in 1910, but it is now used for commuter departures as well as Amtrak and commuter arrivals);
- the LIRR Central Concourse (serving Tracks 13-21);
- the LIRR Main Gate Area (near Seventh Avenue, serving Tracks 13-21); and
- NJT’s Seventh Avenue Concourse, which is split between Levels A and B (serving Tracks 1-12).

Linking these four north/south passages is the Connecting Concourse, which is located directly beneath West 33rd Street. It connects the northern ends of the four north-south passages and connects to both the Eighth Avenue (A, C, and E) and Seventh Avenue (1, 2, and 3) subway stations. An additional east west passageway, the Hilton Passageway, connects the Exit Concourse, Central Corridor, and Seventh Avenue concourses. The Hilton Passageway is located roughly in the middle of the station and provides an additional connection to the Seventh Avenue subway in the vicinity of West 32nd Street.

Various retail establishments are located along the Connecting Concourse, primarily on the north side of the concourse within the basement of the One Penn Plaza building. The Connecting Concourse also provides a connection to the LIRR’s 34th Street entrance via a side corridor and two connections to the One Penn Plaza building. The Hilton Corridor and the West End Concourse are narrower than the other concourses and corridors.

The quantity and configuration of platform access varies among the five Level A concourses: Escalators situated between Level A and the platform typically operate in the peak direction of travel (up in the AM and down in the PM) to carry peak loads.

- West End Concourse—double stairs to Platforms 7 and 9 (serving Tracks 13 and 14, and 17, respectively), stair and escalator to Platform 8 (serving Tracks 15 and 16), single stairs to Platforms 10 and 11 (serving Tracks 18 and 19, and 20 and 21, respectively);
- Exit Concourse—typically an escalator on the west side and a stair on the east side of the concourse, with exceptions at Platforms 1-2 (Tracks 1-4) and Platforms 9-11 (Tracks 17-21), plus ADA-compliant elevators to Platforms 1-6 (Tracks 1-12);
- Central Concourse—ADA-compliant elevators on the west side and stairs on the east side to Platforms 7-11 (Tracks 13-21);
- LIRR Main Gate Area—Stairs on the west side of the concourse to Platforms 7-11 (Tracks 13-21), plus escalators to Platforms 7, 8 and 11 (Tracks 13/14, Tracks 15/16, and Tracks 20/21, respectively), plus additional stairs to Platform 10 (Tracks 18 and 19) and Platform 11 (Tracks 20 and 21) on the east side of the concourse; and

- NJT Seventh Avenue Concourse—two stairs and two escalators to Platforms 1-2 (Tracks 1-4), single stair to Platform 3 (Tracks 5 and 6), single escalator to Platform 4 (Tracks 7 and 8), stair plus escalator to Platforms 5-6 (Tracks 9-12).

### *LEVEL B*

Above Level A is Level B, which was the main level of the original Pennsylvania Station and was designed primarily to accommodate the needs of departing intercity rail passengers on the Pennsylvania Railroad. Situated one level below the street, Level B includes the Main Concourse at the Eighth Avenue end of the station, NJT concourse facilities at the Seventh Avenue end, a corridor on axis with 32nd Street, referred to as the 32nd Street Spine, and the “Rotunda,” a relatively underutilized high-ceiling space along the 32nd Street Spine that contains the Amtrak information booth. **Figure 13-2** shows the configuration of public spaces on Level B.

The Main Concourse has escalators and stairs that provide direct access to platforms 2 through 9 for Amtrak and NJT, as well as ticket offices for both railroads. The Main Concourse also houses Amtrak’s primary passenger service and operational facilities, including the main train information display board, the ClubAcela lounge for first class passengers, and the baggage-handling facilities.

NJT facilities on Level B at the Seventh Avenue end of the station include a seated waiting room, ticket office, and direct elevator access to Platforms 1-5 (Tracks 1-10).

Except for the LIRR’s 34th Street entrance, the station’s main entrances all connect to this level. Two Eighth Avenue entrances are at the western corners of Level B and lead to the east side of Eighth Avenue, while the 32nd Street entrance and the entrances from the midblock driveway are along the 32nd Street Spine.

There are four clusters of vertical circulation elements connecting Levels A and B:

- Between Level B Main Concourse and Level A Exit Concourse;
- Between Level B Main Concourse and Level A Connecting Concourse;
- Between Level B Rotunda and Level A Hilton Passageway; and
- Between 32nd Street Spine and Level A LIRR Main Gate Area and NJT Seventh Avenue Concourse.

Within the Main Concourse are two rows of escalators and stairs providing direct platform access. Those on the west side of the concourse provide access to Platforms 3-9 (Tracks 5-17), while those on the east side serve Platforms 2-8 (Tracks 3-16). Virtually all Amtrak departing passengers use these stairs and escalators for boarding. NJT passengers can either board directly from the Main Concourse or board from the concourses on Level A. There are no direct connections from the Main Concourse to Tracks 18 through 21, which are used only by LIRR trains, so LIRR passengers entering through this area descend via Level A to access their trains.

NJT also has constructed a set of stairs providing access from the central portion of Platforms 1 and 2 (Tracks 1-4) directly up to the B Level, where passengers can walk via a back-of-house corridor to the Rotunda. This facility was envisioned as a temporary installation, to be replaced ultimately by an extension of the Central Concourse on Level A, and is only open during weekday peak periods.



### *LEVEL C (STREET LEVEL) AND STATION ENTRANCES/EXITS*

The railroads generate the bulk of the total pedestrian activity within the Penn Station complex. At street level, rail passenger traffic mixes with other pedestrian traffic associated with area office buildings, retail establishments, the General Post Office and Madison Square Garden.

As described previously, most of the elements of Penn Station lie below street level. There is no significant station-related public circulation space at the street level. The surface above Penn Station is occupied by the Madison Square Garden arena and Two Penn Plaza office building between Seventh and Eighth Avenues and by the Farley Complex west of Eighth Avenue. Street-level entrances to the station are located around and within these buildings, with stairs and escalators descending to the station concourses. The locations of the major street-level station entrances are shown in **Figure 13-3**. Primary street-level entrances and exits, and the station level to which they connect, are as follows:

- At the northeast corner of Eighth Avenue and West 31st Street (to Level B);
- At the southeast corner of Eighth Avenue and West 33rd Street (to Level B);
- On the south side of West 34th Street west of Seventh Avenue (to Level A);
- On the West side of Seventh Avenue at West 32nd Street (to Level B);
- On the east and west sides of a driveway located between Seventh and Eighth Avenues (to Level B); and
- On the northwest corner of West 31st Street and Seventh Avenue (to Level B), which opened in the summer of 2009.

Each of these entrances is served by stairs and one or more escalators. ADA-compliant elevators are provided at only two locations: the 34th Street entrance (to Level A) and on the west side of the midblock driveway (to Levels A and B). Additional minor street access is available via some stairways of adjacent subway stations that provide access to the Penn Station concourses as well. These are located as follows:

- On all four corners of the intersection of Eighth Avenue and West 33rd Street (to Level A); and
- On the northeast, northwest and southeast corners of Seventh Avenue and West 33rd Street (to Level A).

In addition to the above street entrances and exits, there are two direct pedestrian connections between Level A of the station and the adjacent One Penn Plaza office building, one at the Eighth Avenue end of the Connecting Concourse and the other near the 34th Street entrance. These building entrances are open only on weekdays from approximately 7:00 AM to 6:30 PM. A new station entrance at Seventh Avenue and West 31st Street was under construction during 2008, and opened in the summer of 2009, by NJT and therefore is not reflected in the 2008 baseline station usage patterns.

### **HISTORICAL CAPITAL INVESTMENT**

Over the past 20 years, through a series of capital projects, the railroads have reduced congestion bottlenecks, expanded the passenger circulation capacity of the station, and improved the quality of the pedestrian environment.

The LIRR portion of Penn Station is served by four concourse areas that each have escalator and/or stair access to the five LIRR platforms. From east to west, these include the Main Gate Area, Central

Concourse, Exit Concourse (lower level of the main Eighth Avenue concourse) and West End Concourse. Vertical circulation to and from the platforms used by the LIRR is distributed along the length of most platforms. Each of the LIRR platforms has in the range of seven to nine points of egress from the platforms, spread from the Seventh Avenue ends of the platforms to west of Eighth Avenue (at the West End Concourse). On Platforms 7 and 8 (Tracks 13-16), which are used by LIRR during the weekday peak periods, approximately one-third of the length of a full 12-car train is positioned to the west of the westernmost vertical circulation at the West End Concourse.

NJT constructed a new Seventh Avenue Concourse and added platform vertical circulation at the eastern ends of Platforms 1 through 6 (Tracks 1-12). Platforms 1 and 2 (Tracks 1-4) have access points that are well distributed along the length of these relatively short platforms. However, some gaps still remain on Platforms 3 through 6 (Tracks 5-12). NJT also opened in the summer of 2009 a new street entrance at the northwest corner of West 31st Street and Seventh Avenue.

### MORNING AND EVENING PEAK FLOWS

An analysis of pedestrian flows and levels of service within the existing station was undertaken in the Fall of 2006. Though railroad ridership during the morning and evening peak hours has increased by approximately seven percent since then, those 2006 counts represent a reasonable yardstick for measuring future peak conditions against current conditions and have been used for this Technical Memorandum as the basis for calibrating the Penn Station pedestrian circulation model that was used to analyze peak congestion within Penn Station.

At concourse Levels A and B, **Table 13-6** shows morning peak volumes and levels of service at selected locations, as identified in **Figures 13-1** through **13-4**. The principal station concourses and vertical circulation elements operate at LOS C/D or better during the 15-minute peak. Evening peak queuing conditions at the concourses are indicated in **Table 13-7**. Levels of service in the B and C range prevail, with some queues reaching LOS C for short periods of time. The existing facilities are relatively balanced in terms of their loading and congestion. Amtrak and NJT boarding passengers typically wait at concourse level until track assignments are posted and announced, since assigned tracks vary on a daily basis. On the other hand, significant numbers of LIRR boarding passengers descend to platform level in advance of the boarding period, to position themselves to obtain seats on their train, and because LIRR trains typically operate on regularly scheduled tracks. This anticipatory movement of people to the platforms helps compensate for the higher volumes of LIRR passengers and permits the concourse spaces to function at an acceptable level of service.

**Table 13-6**  
**Weekday Morning Peak Pedestrian Flow Levels of Service**  
**at Selected Penn Station Locations—Existing (2008)**

	Location	Circulation Element Type	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
1	Main Entrance, 7th & 32nd	Stair + 2 Escs	11,881	4,158	16.5	15.4	E
2	LIRR Entrance, 7th & 34th	Stair + 3 Escs	9,246	3,236	13.5	14.9	E
3	NJT Entrance, 7th & 31st	Stair + 2 Escs			(Facility under construction during 2008)		
4	33rd St Connecting Concourse West of LIRR Main Gate Area	Corridor	10,279	3,598	20.0	13.2	C
5	33rd St Connecting Concourse East of Exit Concourse	Corridor	11,005	3,852	19.0	14.9	C/D

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**Table 13-6 (cont'd)**  
**Weekday Morning Peak Pedestrian Flow Levels of Service**  
**at Selected Penn Station Locations—Existing (2008)**

	Location	Circulation Element Type	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
6	33rd St Connecting Concourse East of 8th Ave Subway	Corridor	11,859	4,151	26.0	11.7	C
7	Hilton Passageway, East End	Corridor	6,322	2,213	12.0	13.5	C
8	33rd Street Connector East Ramp	Corridor	6,985	2,445	14.0	12.8	C
9	33rd Street Connector West Ramp	Corridor	6,258	2,190	11.0	14.6	C/D
10	West End Concourse North End	Corridor	6,208	2,173	13.0	12.3	C
11	8th Ave Subway Downtown Local Stair to West End Concourse	Stair	2,304	806	7.0	8.4	C
12	8th Ave Subway Downtown Local Stair to Subway Mezzanine	Stair	2,197	769	8.2	6.9	B/C
13a	8th Ave Subway Uptown Local Stair to Penn Station Connecting Concourse	Stair G1	5,020	1,757	16.0	9.4	C
14a	8th Ave Subway Express Platform Stair - North	Stair M21/22	1,150	403	7.0	4.6	B
15a	8th Ave Subway Express Platform Stair - South	Stair M23/24	2,160	755	7.0	8.6	C

**Note:** See Figures 13-1 through 13-4.

**Table 13-7**  
**Weekday Evening Peak Pedestrian Flow Levels of Service**  
**at Selected Penn Station Locations—Existing (2008)**

	Location	Circulation Element Type	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
1	Main Entrance, 7th & 32nd	Stair +2 Escs	10,160	3,556	16.5	11.8	D
2	LIRR Entrance, 7th & 34th	Stair +3 Escs	7,668	2,684	13.5	11.3	D
3	NJT Entrance, 7th & 31st	Stair +2 Escs			(Facility under construction during 2008)		
4	33rd St Connecting Concourse West of LIRR Main Gate Area	Corridor	8,430	2,951	20.0	10.8	C
5	33rd St Connecting Concourse East of Exit Concourse	Corridor	8,484	2,969	19.0	11.5	C
6	33rd St Connecting Concourse East of 8th Ave Subway	Corridor	13,633	4,772	26.0	13.5	C
7	Hilton Passageway, East End	Corridor	5,328	1,865	12.0	11.4	C
8	33rd Street Connector East Ramp	Corridor	8,781	3,073	14.0	16.1	D
9	33rd Street Connector West Ramp	Corridor	6,753	2,364	11.0	15.8	D
10	West End Concourse North End	Corridor	5,014	1,755	13.0	9.0	B
11	8th Ave Subway Downtown Local Stair to West End Concourse	Stair	2,745	961	7.0	10.1	C/D
12	8th Ave Subway Downtown Local Stair to Subway Mezzanine	Stair	3,315	1,160	8.2	10.4	C/D
13a	8th Ave Subway Uptown Local Stair to Penn Station Connecting Concourse	Stair G1	2,940	1,030	16.0	5.1	B
14a	8th Ave Subway Express Platform Stair - North	Stair M21/22	1,320	461	7.0	5.3	B
15a	8th Ave Subway Express Platform Stair - South	Stair M23/24	1,840	643	7.0	6.8	B

**Note:** See Figures 13-1 through 13-4.

The north/south corridors on Level A (the Central Concourse, Exit Concourse, and Seventh Avenue Concourse) show flow rates within LOS A-C in the AM and PM peak 15-minute periods. The volume of passengers in the Central Corridor are relatively low, because it only serves LIRR trains and offers a more circuitous route to and from the platforms compared with the other concourses. The Exit Concourse shows slightly more variation with modest congestion in the vicinity of the Connecting Concourse, and free flow to the south of the Hilton Corridor. As will be discussed further below, the primary access to both subway stations is via the Connecting Concourse, which accounts for the increased volume as one travels through the concourse from south to north. The Seventh Avenue concourses (LIRR Main Gate Area and NJT Seventh Avenue Concourse) are busy but relatively free-flowing in the morning peak. They become significantly more congested during the evening peak, when substantial volumes of passengers are waiting in these areas for train departures.

The east-west Connecting Concourse currently functions at LOS C to C/D, depending on location and time of day. Although fairly wide overall, the Concourse carries great volumes of passengers *en route* to the subways and exits and is punctuated by stairways and an escalator to Platform 11 (Tracks 20 and 21) along its south side. During the AM peak 15 minute period, the volume of people in the western portion of the Connecting Concourse generates relatively congested conditions at LOS D. Moving eastward down the corridor, peak conditions are in the LOS C range. In the PM peak, the Connecting Concourse exhibits a more spread peak than in the morning and operates at LOS C, but this does not reflect the effects of passengers waiting in the Corridor for trains to be announced.

#### **VERTICAL CIRCULATION ELEMENTS**

The majority of vertical circulation elements for Penn Station appear to operate at either LOS A or B (16 of 20 locations) in both the AM and PM peak periods with four notable exceptions:

- The main stair and escalator bank leading to Seventh Avenue at 32nd Street operates at LOS E in the AM peak 15-minute period and at LOS D in the PM peak, as it is the primary NJT and Amtrak entrance;
- The stair and escalator bank leading to 34th Street west of Seventh Avenue operates at LOS E in the AM and D in the PM peak 15 minutes as it is the primary LIRR entrance;
- The stair and escalator bank leading to the 32nd Street Spine from the LIRR main gate area operates at LOS C in the AM and LOS D in the PM peak as it is the main connection for LIRR passengers to and from the 32nd Street entrance; and
- The stairway leading to the Eighth Avenue subway downtown local platform from the West End Concourse operates at LOS C in the AM peak and LOS C/D in the PM peak 15-minute period as many LIRR passengers arrive/depart directly via the Eighth Avenue subway. This stair also leads to street stairways on the west side of Eighth Avenue, currently offering the most westerly entrance and exit to Penn Station.

These relatively congested existing levels of service demonstrate the heavy utilization of Penn Station's public spaces and concourses by rail passengers and other commuters during the weekday peak periods.

#### **EVENING PEAK ACCUMULATIONS**

Space utilization varies significantly throughout the station, with some areas much more heavily used by people either waiting or walking than other areas. Nonetheless, the total area available

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for passengers provides a useful measure and a point of comparison with proposed improvements that are part of the Project. **Table 13-8** presents a breakdown of space available to the public in various areas on Levels A and B.

**Table 13-8**  
**Public Spaces for Passengers Within Penn Station—Existing (2008)**

Location		Open Waiting & Queuing	Seated Waiting	Ticketing Queues	General Circulation	Total Area (gsf)
Level A	NJT Seventh Ave. Concourse	8,025				8,025
	NJT Seventh Ave Con. Lower North End	2,060				2,060
	Hilton Corridor				9,353	9,353
	LIRR Main gate & Ticketing Area	12,515		3,760	1,623	17,898
	LIRR Waiting Room		1,586			1,586
	33rd Street Connecting Concourse	4,900			17,325	22,225
	LIRR 34th Street Entrance Hall				6,189	6,189
	Seventh Ave. Subway Free Area				5,310	5,310
	Central Corridor	4,987			554	5,541
	Exit Concourse -- North End	9,167			3,929	13,095
	Exit Concourse -- South End	6,219			5,088	11,307
	LIRR West End Concourse	3,946			438	4,384
Level B	Eighth Avenue Subway Free Area				5,413	5,413
	Amtrak/NJT Main Concourse	21,318		6,983	4,971	33,272
	Amtrak/Acela/NJT Waiting Rooms		14,722			14,722
	Rotunda and Links to Main Concourse				29,075	29,075
	32nd Street Spine				11,980	11,980
	NJT Seventh Ave. West Balcony				7,779	7,779
	NJT Seventh Ave. Waiting Room		2,666			2,666
	NJT Seventh Ave. East Balcony				8,273	8,273
TOTAL	NJT Seventh Ave. South Walkway				800	800
		73,136	18,974	10,743	118,100	220,953

Peak passenger accumulations within each of the existing station concourses during the evening peak period are presented in **Table 13-9**. By comparing these figures with the estimated effective concourse area for passenger waiting and queuing, netting out space occupied by columns and obstructions as well as space that is dedicated to passenger circulation, an estimate of the relative level of crowding is obtained by using Fruin's measures of queuing level of service. Waiting space is limited and significant crowding regularly occurs in the LIRR Main Gate Area, the NJT Seventh Avenue concourse, the Level A Exit Concourse, and, when moderate LIRR train delays occur, at the existing West End Concourse.

**Table 13-9**  
**Weekday Evening Peak Passenger Accumulations Within Boarding Concourses—Existing (2008)**

EXISTING (2008)		West End Concourse North	Level B Main Concourse	Exit Concourse North	Exit Concourse South	Central Concourse	LIRR Main Gate Area	NJT Seventh Avenue Concourse
PM Peak Hour Boardings	Amtrak		2,011					
	LIRR	3,387		8,316		1,547	16,460	
	NJT		4,662		4,385			11,376
	Total	3,387	6,673	8,316	4,385	1,547	16,460	11,376
Peak Occupancy	Amtrak		523					
	LIRR	373		915		170	1,811	
	NJT		513		482			1,251
	Total	373	1,036	915	482	170	1,811	1,251
Effective Queuing Area (sf)		4,000	21,000	10,000	6,000	5,000	17,000	10,000
Queue Density (sf/p)		10.72	20.27	10.93	12.45	29.41	9.39	7.99
Level of Service (LOS)		B/C	A	B/C	B/C	A	C/D	C/D

**Note:** This analysis assumes normal operating conditions with trains running on or close to schedule; passengers wait at concourse level for track assignment information.

## PLATFORM CLEARANCE

Passenger queuing occurs at the platforms following morning peak train arrivals. Immediately following train arrivals, exit stairs and escalators operate at their capacity (LOS E) for several minutes until the queue dissipates, then remain empty until the next train arrival. Queuing conditions are considered unacceptable if queues extend beyond approximately six minutes, increasing the likelihood that a following train would arrive before the passengers from a prior train have been cleared from the platform. In general, the LIRR platforms, with their multiple exit points, operate acceptably.

A lack of vertical circulation capacity and the uneven spreading of that capacity along the length of certain platforms results in inordinately long times to clear platforms of passengers when trains arrive with a full load, most often during the morning peak. This condition is most prevalent on platforms 3 through 6 (serving Tracks 5-12), which lack access at their western ends (the LIRR West End Concourse provides such access to Platforms 7 through 11, which serve Tracks 13-21), and which also lack access in their central portions (the LIRR Central Concourse provides such access to Platforms 7 through 11 [for Tracks 13-21], while the interim Level B stairs provide such access at Platforms 1 and 2, which serve Tracks 1-4). Queues at Platforms 3 through 6 (Tracks 5-12) can exceed the six minute goal for heavily-loaded NJT trains. The platform clearance times for the existing station are summarized in **Table 13-10**.

**Table 13-10**  
**Existing Station Configuration—Platform Clearance Times**  
**Following Arrival of Fully Loaded Train**

Platform	Tracks	Length (ft.)	No. of Cars	Railroad	Seats / Car	Passenger Load	No. of Escs.	No. of Stairs	Total Vertical Circulation Elements	Total Egress Capacity (ped / min)	Platform Clearance Time	
											Minimum (min)	Expected (min)
11	20, 21	1,007	12	LIRR	115	1,380	1	7	8	741	1.96	2.29
10	18, 19	1,022	12	LIRR	115	1,380	2	7	9	1201	1.21	1.83
9	17	916	10	LIRR	115	1,150	1	8	9	713	2.03	3.66
8	15, 16	1,185	12	LIRR	115	1,380	4	5	9	779	1.86	2.86
7	13, 14	1,483	12	LIRR	115	1,380	4	5	9	699	2.07	3.03
6	11, 12	1,464	12	NJT	135	1,620	4	2	6	494	3.44	5.37
5	9, 10	1,463	12	NJT	135	1,620	4	2	6	440	3.87	5.60
4	7, 8	1,149	12	NJT	135	1,620	3	2	5	437	3.89	5.60
3	5, 6	934	10	NJT	135	1,350	2	3	5	437	2.76	5.47
2	3, 4	842	8	NJT	135	1,080	3	5	8	703	1.61	1.92
1	1, 2	842	8	NJT	135	1,080	2	6	8	722	1.57	1.86

**Notes:**  
 Minimum clearance time assumes passengers are distributed among egress points in proportion to egress capacity.  
 Expected clearance time assumes passengers are distributed according to location on platform and desired point of egress, based on historical surveys.  
 Expected clearance times also assume that passengers choose the nearest egress point once queues dissipate.

## E. FUTURE WITHOUT THE PROJECT

This case analyzes rail passenger traffic growth and West Side development that is projected to occur between now and 2015, if the Project and related actions were not to proceed. ESDC has purchased the Farley Complex from the USPS, and, absent the proposed Project, USPS would continue to occupy space within the Farley Complex for its operations. The No Build condition for the Project differs in some respects from the No Build condition analyzed in the 2006 FEIS. ESDC would redevelop portions of the Farley Complex with commercial uses. The existing

Penn Station configuration, including the existing West End Concourse beneath would be retained in their existing configurations.

This No Build condition assumes that no new passenger circulation facilities would be constructed west of Eighth Avenue within the limits of the Farley Complex, and no modifications would be made to either the Eighth Avenue subway station or the existing LIRR West End Concourse.

### PHYSICAL IMPROVEMENTS FOR PEDESTRIAN CIRCULATION

The analysis of projected future conditions without the Project, i.e., the No Build condition, includes projected growth in rail passenger traffic to the year 2015 and assumes completion of programmed station and rail system capacity improvement projects by the railroads. Within the Penn Station complex, the most significant current project is the construction of a new station entrance by NJT at the northwest corner of Seventh Avenue and 31st Street, providing a direct pedestrian pathway between the NJT Seventh Avenue Concourse and the street. This improvement, completed in the summer of 2009, provides a more direct and less crowded walking route for many NJT passengers and is intended to relieve congested conditions at the main station entrance at Seventh Avenue and West 32nd Street. This project, however, is expected to have little effect on passenger circulation conditions at the Eighth Avenue end of the station.

No other significant circulation improvements are planned for the station within the 2015 timeframe by any of the three operating railroads. The western portions of the station, including the Eighth Avenue Subway station and West End Concourse, are assumed to remain the same in the 2015 No Build condition as in the 2008 existing condition.

### MORNING AND EVENING PEAK FLOWS

The increase in commuter rail traffic projected by the year 2015 would result in congested conditions at certain locations within Penn Station in the morning peak, as **Table 13-11** shows. In the No Build condition, the only significant change to the physical configuration of the station in 2015 is the opening of a new street entrance/exit for the NJT Seventh Avenue Concourse at Seventh Avenue and 31st Street (Location #3 on **Figures 13-2** and **13-3**). This improvement siphons some NJT passengers from the overcrowded main stair/escalator bank at Seventh Avenue and West 32nd Street (Location #1 on **Figures 13-2** and **13-3**) and, in turn, would enable some LIRR passengers to shift their access route from the LIRR 34th Street entrance (Location #2 on **Figures 13-1** and **13-3**) to the Seventh Avenue and 32nd Street entrance (Location #1 on **Figures 13-2** and **13-3**). This projected shifting of pedestrian routes would allow the existing two main pedestrian entrances (Seventh Avenue and West 32nd Street and Seventh Avenue and West 34th Street) to continue to operate in the LOS E range during the morning and evening peak 15 minute periods—close to capacity but not generating gridlocked conditions.

Otherwise, peak pedestrian traffic within the station is estimated to grow proportionally with the projected increase in overall peak hour ridership between 2008 and 2015. Peak levels of service are projected to reach the D range at the following locations:

- Connecting Concourse;
- LIRR 34th Street Entrance;
- Eighth Avenue Subway mezzanine ramps; and
- Seventh Avenue Subway entrances at 33rd Street and 32nd Street.

**Table 13-11**  
**Weekday Morning Peak Pedestrian Flow Levels of Service**  
**at Selected Penn Station Locations—2015 No Build**

	Location	Circulation Element Type	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
1	Main Entrance, 7th & 32nd	Stair + 2 Escs	12,161	4,256	16.5	15.6	E
2	LIRR Entrance, 7th & 34th	Stair + 3 Escs	10,423	3,648	13.5	16.5	E
3	NJT Entrance, 7th & 31st	Stair + 2 Escs	5,952	2,083	12.5	9.8	C/D
4	33rd St Connecting Concourse West of LIRR Main Gate Area	Corridor	12,747	4,461	20.0	16.4	D
5	33rd St Connecting Concourse East of Exit Concourse	Corridor	13,936	4,878	19.0	18.8	D
6	33rd St Connecting Concourse East of 8th Ave Subway	Corridor	15,532	5,436	26.0	15.3	C/D
7	Hilton Passageway, East End	Corridor	8,639	3,024	12.0	18.5	D
8	33rd Street Connector East Ramp	Corridor	9,117	3,191	14.0	16.7	D
9	33rd Street Connector West Ramp	Corridor	8,160	2,856	11.0	19.0	D
10	West End Concourse North End	Corridor	8,093	2,833	13.0	14.5	C/D
11	8th Ave Subway Downtown Local Stair to West End Concourse	Stair	3,019	1,057	7.0	11.1	D
12	8th Ave Subway Downtown Local Stair to Subway Mezzanine	Stair	2,867	1,003	8.2	9.0	C
13a	8th Ave Subway Uptown Local Stair to Penn Station Connecting Concourse	Stair G1	7,610	2,663	16.0	13.4	E
14a	8th Ave Subway Express Platform Stair - North	Stair M21/22	1,270	444	7.0	5.1	B
15a	8th Ave Subway Express Platform Stair - South	Stair M23/24	2,850	999	7.0	11.5	D

**Note:** See Figures 13-1 through 13-4.

Peak flow rates at most locations within the station are lower during the evening peak, compared with the morning peak, which tends to be more concentrated. Resulting peak levels of service, shown in **Table 13-12**, generally are as good or better in the evening peak, compared with the morning. When compared to existing conditions, the No Build levels of service would be expected to significantly worsen by 2015, due to the significant projected increase in peak hour rail passenger traffic.

**Table 13-12**  
**Weekday Evening Peak Pedestrian Flow Levels of Service**  
**at Selected Penn Station Locations—2015 No Build**

	Location	Circulation Element Type	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
1	Main Entrance, 7th & 32nd	Stair + 2 Escs	10,648	3,727	16.5	12.2	D
2	LIRR Entrance, 7th & 34th	Stair + 3 Escs	9,342	3,270	13.5	13.7	E
3	NJT Entrance, 7th & 31st	Stair + 2 Escs	5,775	2,021	12.5	8.8	C
4	33rd St Connecting Concourse West of LIRR Main Gate Area	Corridor	10,536	3,688	20.0	13.5	C
5	33rd St Connecting Concourse East of Exit Concourse	Corridor	10,659	3,731	19.0	14.4	C
6	33rd St Connecting Concourse East of 8th Ave Subway	Corridor	16,911	5,919	26.0	16.7	D
7	Hilton Passageway, East End	Corridor	7,342	2,570	12.0	15.7	D
8	33rd Street Connector East Ramp	Corridor	10,550	3,693	14.0	19.3	D
9	33rd Street Connector West Ramp	Corridor	8,117	2,841	11.0	18.9	D



**Table 13-12 (cont'd)**  
**Weekday Evening Peak Pedestrian Flow Levels of Service**  
**at Selected Penn Station Locations—2015 No Build**

Location		Circulation Element Type	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
10	West End Concourse North End	Corridor	6,625	2,319	13.0	11.9	C
11	8th Ave Subway Downtown Local Stair to West End Concourse	Stair	3,646	1,276	7.0	13.4	D/E
12	8th Ave Subway Downtown Local Stair to Subway Mezzanine	Stair	3,925	1,374	8.2	12.3	D
13a	8th Ave Subway Uptown Local Stair to Penn Station Connecting Concourse	Stair G1	3,920	1,372	16.0	6.3	B
14a	8th Ave Subway Express Platform Stair - North	Stair M21/22	1,750	612	7.0	7.0	C
15a	8th Ave Subway Express Platform Stair - South	Stair M23/24	2,500	875	7.0	9.1	C

**Note:** See Figures 13-1 through 13-4.

## EVENING PEAK ACCUMULATIONS

In the year 2015 No Build condition, LIRR peak hour traffic is projected to grow, but the patterns of pedestrian movement, queuing and accumulation would remain the same as at present. About 40 percent of LIRR departing passengers would use the Main Gate Area, where most of the LIRR's support and customer service facilities are located. Smaller percentages would use the Central Concourse, Exit Concourse and West End Concourse. Between 2008 and 2015, NJT traffic is projected to continue growing, which would put additional stress on each of the concourse facilities used by NJT passengers for boarding trains in the evening peak—the Seventh Avenue Concourse, the south end of the Exit Concourse, and the Main Concourse on Level B (shared with Amtrak passengers).

In the No Build condition, Amtrak would continue to have its main departure facilities—including ticketing, train information, baggage handling and seated waiting areas—at the Main Concourse on Level B of the existing station. The projected increase in Amtrak evening peak hour boardings of approximately 44 percent between 2008 and 2015 would strain the capacity of the existing facilities. Although the overall level of service for queuing in the Main Concourse would be in the C range—this level of service, while generally acceptable for commuters used to crowded conditions at major terminals, is not desirable for Amtrak intercity rail customers and will constrain Amtrak's ability to build ridership growth to and from New York.

**Table 13-13** presents the projected volumes, queues and levels of service during the year 2015 evening peak at each of the principal Penn Station concourses.

**Table 13-13**

**Weekday Evening Peak Passenger Accumulations Within Boarding  
Concourses—2015 No Build**

<b>2015 No Build</b>								
		West End Concse North	Level B Main Concse	Exit Concse North	Exit Concse South	Central Concse	LIRR Main Gate Area	NJT Seventh Avenue Concse
PM Peak Hour Boardings	Amtrak		3,023					
	LIRR	4,355		10,693		1,989	21,164	
	NJT		6,373		5,994			15,550
	Total	4,355	9,396	10,693	5,994	1,989	21,164	15,550
Peak Occupancy	Amtrak		786					
	LIRR	479		1,176		219	2,328	
	NJT		701		659			1,710
	Total	479	1,487	1,176	659	219	2,328	1,710
Effective Queuing Area (sf)		4,000	21,000	10,000	6,000	5,000	17,000	10,000
Queue Density (sf/p)		8.35	14.12	8.50	9.10	22.83	7.30	5.85
Level of Service (LOS)		C/D	A/B	C/D	C/D	A	D	D/E
<b>Note:</b> This analysis assumes normal operating conditions with trains running on or close to schedule; passengers wait at concourse level for track assignment information.								

## F. PROBABLE IMPACTS OF THE PROPOSED PROJECT

Future pedestrian circulation conditions within the train station were analyzed for 2015 Build year rail passenger traffic for the proposed Project—with proposed train station and pedestrian station circulation improvements included in the Project assumed to be in place, and with the new non-station development proposed for the Farley Complex and Development Transfer Site. This is defined as the Build condition, and station pedestrian circulation levels of service were compared for the Build and No Build conditions to determine whether or not the Project would generate any significant adverse impacts on pedestrian circulation within the station.

### PHYSICAL IMPROVEMENTS FOR PEDESTRIAN CIRCULATION

The Build condition incorporates and builds upon the programmed station improvements that are included in the No Build condition. The Project would result in extensive capital investments in train station facilities within the Farley Complex on the west side of Eighth Avenue and would not involve any modifications to rail passenger facilities and public circulation at the existing Penn Station concourses between Eighth and Seventh Avenues.

The Project would construct a total of 36 stairways, escalators and passenger elevators down to the platforms west of Eighth Avenue, greatly improving passenger access to and from the platforms in this zone of the station. Of these, 21 platform escalators and elevators would be provided at a new public Train Hall within the former mail-handling atrium of the Farley Building. The remaining stairways and escalators would be added to the West End Concourse—an existing passenger concourse that would be widened and extended to provide access to additional station platforms.

One new platform would be opened up for use by Amtrak Empire Service passengers. The existing Diagonal Platform (Platform 12), formerly used for handling mail, would be refurbished and the adjoining tracks reconfigured to connect with the existing tunnel leading to Amtrak's

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Empire Line. This platform would be accessed directly from the Moynihan Station Train Hall as well as from the south end of the extended West End Concourse.

The Project also includes reconfiguration of the 33rd Street passageway within NYC Transit property beneath the Eighth Avenue Subway, providing a more prominent, higher-capacity and ADA-compliant connector between the Farley Complex and the existing Penn Station concourses and subway stations.

Two station options are being considered, primarily affecting the configuration and usage of Moynihan Station within the Farley Complex.

### *AMTRAK STATION OPTION*

In this option, the Project would relocate most of Amtrak's Penn Station operations to the Farley Complex. All of the passenger-handling functions and activities now located at the Main Concourse on Level B of the existing station, beneath Madison Square Garden, would be relocated. The new facilities for Amtrak within Moynihan Station would be larger than those at the existing station—allowing Amtrak ridership to and from New York to approximately triple over the next 20 years. These facilities would be better configured and more attractive than the existing Penn Station facilities.

The new train station facilities west of Eighth Avenue also would be used by commuters. The existing West End Concourse would be widened and lengthened, expanding its access to additional platforms and making it usable by NJT passengers in addition to LIRR riders. Commuter passengers would be able to wait and obtain train information at the Moynihan Station Train Hall as well as within the West End Concourse. The facilities would allow the Train Hall to better accommodate Amtrak and commuter passengers simultaneously in the same space, avoiding the cramped and crowded conditions that typically prevail in the evening peak period in the existing Penn Station Main Concourse.

### *Train Hall*

The configuration of the Train Hall on Level B of Moynihan Station remains similar to the 2006 plan and is shown on **Figure 13-5**. The major difference from the 2006 plan is the relocation of most of Amtrak's station operations and passenger-handling activities from Penn Station to Moynihan Station.

The central atrium of the Farley Building would become a large public concourse for rail passengers, providing a passenger elevator and two direct escalators to seven station platforms—Platforms 3 through 8 (Tracks 5-16) plus the Diagonal Platform. These are the platforms used by Amtrak, and these vertical circulation elements would be the way that departing Amtrak passengers board their trains.

Station-related retail would line the northern, eastern and southern edges of the Train Hall, which, along with the sky-lit atrium, would make this an attractive location for Amtrak passengers to wait for trains, as well as for commuter passengers arriving on foot from the West Side of Midtown Manhattan.

The central and western portions of the Train Hall would be occupied primarily by Amtrak passengers either waiting or queuing at the escalators prior to boarding. The eastern side of the Train Hall would be used by commuter passengers as a waiting zone, with LIRR passengers congregating towards the northeast corner of the Train Hall, and, to a lesser extent, NJT passengers using the southeastern portion of the Train Hall.

Large train information boards would be mounted on the east wall of the Train Hall, providing up-to-the-minute train information. A staffed information booth also would be provided within the Train Hall.

When not in use for passenger boarding, the platform escalators and elevators would be available for use by arriving Amtrak, LIRR and NJT passengers exiting the platforms.

The western edge of the Train Hall would contain all of Amtrak's passenger-handling and service functions, including the ticket office, ticket vending machines, baggage check and claim facilities, seated waiting areas, customer service office, and ClubAcela lounge for first class passengers and frequent travelers. A public corridor (Location #15 on **Figures 13-5** and **13-6**) would head west along the alignment of West 32nd Street from the Train Hall, lined on both sides with retail stores, providing pedestrian access to Ninth Avenue.

#### *Intermodal Hall and Circulation*

The configuration of the Amtrak Station Option at street level (Level C) is shown on **Figure 13-6**. A prominent bank of escalators and stairs would lead upwards from the west side of the Train Hall on Level B to another significant public space at street level—the Intermodal Hall (Location #16 on Level C, shown on **Figures 13-5** and **13-6**). This upper level public hall would provide access to the primary street entrances at the West 33rd Street midblock and at Ninth Avenue, as well as to a secondary entrance at the West 31st Street midblock. The Intermodal Hall would have a sky-lit roof and would provide access to the street, destination retail stores and other development in the Western Annex of the Farley Complex. Pedestrians would be able to walk along a balcony overlooking the north side of the Train Hall to reach the Post Office facility at the Eighth Avenue end of the Farley Building and the grand Eighth Avenue stairs. The upper level public spaces also would provide important reservoir space that could be occupied by rail passengers in the event of significant train delay conditions, where they would obtain up-to-date information on the status of train departures while relieving the intense overcrowding that typically occurs within the existing station when such delays occur.

#### *OPEN STATION OPTION*

In this option, the configuration of public spaces within the Farley Building would be similar to the Amtrak Station option, with the major difference being that Amtrak's station facilities and passenger-handling activities would remain in their existing locations within Penn Station, and Amtrak passengers would board intercity trains from the existing main concourse instead of from the Moynihan Station Train Hall.

In this option, the Train Hall and West End Concourse would be usable by rail passengers of any of the railroads operating at Penn Station—Amtrak, LIRR, NJT and, in the future, Metro-North. Train departure information for each of the railroads would be displayed in the Train Hall, and ticket vending machines for each railroad would be provided. As a practical matter, the Train Hall and West End Concourse likely would be most heavily utilized by LIRR passengers, because access to all of the LIRR's platforms would be relatively convenient. Amtrak departing passengers would likely continue to use the existing Main Concourse for train boarding. Commuters from New Jersey arriving on the western ends of NJT commuter trains would find it convenient to use the new station facilities west of Eighth Avenue; however, the Train Hall and West End Concourse would be of limited utility to NJT departing passengers because direct access would not be provided to all of the station platforms used by NJT. In the future, if

direct access is provided to Platforms 1 and 2 (serving Tracks 1-4) independently of the Project, the Train Hall could become a full-service concourse for NJT.

### *Train Hall*

The configuration of the Train Hall atrium would be similar to the Amtrak Station Option, with a large public concourse beneath a sky-lit roof, punctuated by the escalators and elevators leading directly down to the platforms, as shown on **Figure 13-7**. Access to the Train Hall from the street would be the same in both options. Vertical circulation down to the West End Concourse level would be exactly the same as in the Amtrak Station Option.

The western edge of the Train Hall would be configured differently in the Open Station Option. The horseshoe-shaped Amtrak ticketing and waiting zone would not be constructed, and the public retail corridor at the Train Hall level heading westward towards Ninth Avenue would not be built (although the corridor would be constructed one level up on Level C as under the Amtrak Station Option). Instead, the west side of the Train Hall would be occupied by retail space and potential railroad back-of-house functions, and the Western Annex basement would contain loading and support space for the U.S. Postal Service.

### *Intermodal Hall and Circulation*

As in the Amtrak Station Option, a large stair/escalator bank would lead upward to the west from the Train Hall on Level B to the Intermodal Hall at street level (Level C). The general configuration of public corridors and entranceways on Level C would be similar between the two schemes, as shown on **Figure 13-8**, as would the types of retail uses envisioned for the Western Annex.

The major difference between the two options would be that the Intermodal Hall and the West 32nd Street pedestrian corridor would have a large, continuous floor in the Open Station Option, without an opening to the level below, providing a larger quantity of public space that would serve the portion of the site devoted to retail and provide a reservoir of space that could be occupied by rail passengers in the event of train delays. The Intermodal Hall level is shown on **Figure 13-8**.

Public corridors along the north and south balconies of the Train Hall would connect the midblock Intermodal Hall to the existing Post Office lobby at Eighth Avenue, which would remain as a public Post Office.

## *ELEMENTS COMMON TO BOTH OPTIONS*

### *West End Concourse Extension*

The Project would both widen and lengthen the existing West End Concourse. The concourse would be approximately doubled in width, from 17 to 38 feet, providing increased space for both passenger waiting and circulation. The existing concourse serves only those platforms used by the LIRR, Platforms 7 through 11 (Tracks 13-21). The West End Concourse would be extended all the way to the south station retaining wall, as shown on **Figure 13-9**. This extension would provide new stairways down to Platforms 3 through 6 (Tracks 5-12), enable future stair connections to Platforms 1 and 2 (Tracks 1-4) when these platforms are extended westward (which is not part of the Project), and allow for a future connecting passageway to the existing Penn Station concourses in the vicinity of 31st Street (also not part of the Project). Instead of serving only LIRR passengers, the enlarged concourse would be used by passengers arriving on

LIRR, NJT and Amtrak trains. Arriving passengers would be able to ascend from the platforms to the West End Concourse and then proceed either directly to the 33rd Street Connector (providing access to the Eighth Avenue Subway, Seventh Avenue Subway, and the existing Penn Station concourses) or up one additional level to the Train Hall and the exits to street level.

The northern end of the West End Concourse would continue to be used by LIRR passengers, particularly as a route for those passengers transferring to and from the Eighth Avenue Subway, and as a place for departing passengers to obtain train information, wait, and then proceed to platform level when track assignments are posted.

The extended West End Concourse also potentially would be used by some NJT passengers to board their trains during the evening peak, but the inability to provide universal access from the concourse to all station platforms used by NJT would limit its usefulness for departing NJT passengers. Since the track assignments for NJT commuter trains can vary from day to day, and since a significant percentage of trains depart from Platforms 1 and 2 (Tracks 1-4), most NJT passengers would choose to wait and obtain train information at concourse locations within the existing station with direct access to all platforms.

For purposes of this Technical Memorandum, the conservative assumption has been made that up to five percent of NJT departing passengers would board trains from the extended West End Concourse. Until Platforms 1 and 2 (Tracks 1-4) are extended independently of the Project, the actual usage of the West End Concourse by NJT passengers is expected to be less.

At the southern end of the extended West End Concourse, a stairway would be provided down to the east end of the Diagonal Platform. This stair would provide a direct walking route for Empire Service passengers between the platform and the subways,

#### *Platform Access*

The Project would add vertical circulation capacity to and from Platforms 3 through 8 (serving Tracks 5-16) in Penn Station—all of it west of Eighth Avenue. No changes would be made to vertical circulation on Platforms 1, 2, 10 and 11 (which serve Tracks 1/2, 3/4, 18/19, and 20/21, respectively). As part of the West End Concourse widening, one existing escalator and four existing stairways would be removed and replaced with new stairways on Platforms 7, 8 and 9, (serving Tracks 13/14, 15/16, and 17, respectively), with the replacement stair capacity equaling or exceeding the existing vertical circulation capacity at each of these platforms. On Platforms 3 through 6 (Tracks 5-12), all existing vertical circulation would be retained, and new capacity would be created west of Eighth Avenue. The proposed platform access improvements include:

- Platform 3 (Tracks 5/6)
  - 2 new escalators (Train Hall), 2 new stairs (West End Concourse)
  - 1 new elevator
- Platforms 4, 5 & 6 (Tracks 7-12)
  - 2 new escalators (Train Hall), 2 new stairs (West End Concourse)
  - 1 new passenger elevator, 1 new service elevator, 1 new emergency stair
- Platforms 7 & 8 (Tracks 13-16)
  - 2 new escalators (Train Hall), 2 new stairs replacing existing stairs and escalator (West End Concourse), 1 new passenger elevator, 1 new service elevator, 1 new emergency stair

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- Platform 9 (Track 17)
  - 2 new stairs, replacing the existing stairs (West End Concourse)
- Diagonal Platform (Platform 12)
  - 2 new escalators (Train Hall), 1 new stair (West End Concourse), 1 new passenger elevator, 2 new service elevators.

A pair of escalators would be provided from the center of the Train Hall directly to each of Platforms 3 through 8 (Tracks 5-16). New ADA-compliant passenger elevators would be provided at the Train Hall, serving Platforms 3 through 8 (Tracks 5-16). The elevators to Platforms 4 through 8 (Tracks 7-16) would be located on the west side of the Train Hall. The elevator to Platform 3, serving Tracks 5 and 6 (which does not extend as far west as the other platforms) would be located on the south side of the concourse.

At the lower concourse level (Level A), the Project would retain the existing stairs down to Platforms 9, 10 and 11 (serving Tracks 17-21). New stairway access would be provided from the east side of the widened and lengthened West End Concourse down to Platforms 3 through 8 (Tracks 5-16). A pair of new stairways, nominally 6 feet wide, would be provided to each of these platforms. One stair would point towards the west end of the platform; the other would point eastward. Both stairs would turn 90 degrees and have a common landing. The stairs would rise to a landing area at the West End Concourse level shared with one adjacent platform. This would create three groups of two platforms each (i.e., Platforms 3 & 4, 5 & 6, and 7 & 8—serving Tracks 5-16), each sharing a common landing area. This configuration would minimize the quantity of passenger queuing occurring within the West End Concourse itself at the tops of the stairways. All platform access would occur on the east side of the concourse; waiting, train information and access up to the Train Hall would occur on the west side of the concourse.

A pair of escalators and a passenger elevator would be constructed at the south side of the Train Hall to the Diagonal Platform, which is expected to become the primary platform used by all Amtrak Empire Line trains providing service within New York State.

Emergency exit stairways would be provided toward the western ends of Platforms 4 through 8 (Tracks 7-16) to supplement the station's egress capacity and eliminate an existing *cul-de-sac* condition that exists at the west ends of these platforms. An emergency exit towards the western end of the Diagonal Platform also would be provided.

### *Level A to B Vertical Circulation—North Side (Location #17)*

At the Train Hall level (Level B), in the vicinity of the ramp along the north edge of the Farley Building, a vertical circulation element would descend from the Train Hall level down to the north end of the West End Concourse (Location #17 on **Figures 13-5, 13-7, and 13-9**). Escalators could be provided at this location, which lies above the western end of Platform 10 (Tracks 18 and 19). The ramp (Location #21 on **Figures 13-5 and 13-7**) would be approximately 19 feet wide and would occupy the southern half of the space, while the escalators and/or stair would occupy the northern half of the space along the outside wall of the Farley Building. The pedestrian circulation capacity of the ramp is greater than the capacity of the doorways leading out to Eighth Avenue; therefore, the ramp as shown would not constrain the flow of pedestrians moving into and out of the Farley Building at this location.

*Level A to B Vertical Circulation—South Side (Location #18)*

This vertical circulation element (Location #18 on **Figures 13-5, 13-7, and 13-9**) toward the southern edge of the Farley Building corresponds to the vertical circulation element described above (Location #17), providing access between the Train Hall and extended West End Concourse on the West 31st Street side of the building. A stairway would be provided at this location, since escalator pits would conflict with the catenary structure and dynamic envelope of the trains on the tracks immediately below. This south side stairway would not be as heavily used as the vertical circulation on the north side. The ramp zone (Location #22 on **Figures 13-5 and 13-7**) would have ample space to accommodate projected pedestrian flows on both a stair and a ramp at an uncongested level of service.

*33rd Street Connector and Eighth Avenue Subway Station Modifications*

The indoor pedestrian route through the Eighth Avenue Subway station that links the West End Concourse with the other Penn Station concourses would be enlarged and improved. This 33rd Street Connector would become one of the major pedestrian access routes to the new station facilities west of Eighth Avenue. The Project would widen the existing east and west ramps and modify the N67 mezzanine level subway turnstile array to create as wide a public walkway as is physically possible within the limits of the trainshed structure and the property line. The connector would provide a direct, indoor walking route between the existing Penn Station concourses and Moynihan Station. Though the space within and adjacent to the Eighth Avenue Subway station would have relatively low ceiling heights (underneath the Eighth Avenue Subway), the Project would significantly improve and widen the existing public circulation spaces.

Both the west ramp leading to the Train Hall and West End Concourse (Location #9 on **Figures 13-1, 13-4, 13-9, and 13-10**) and the east ramp leading to the existing Penn Station (Location #8 on **Figures 13-1, 13-4, 13-9, and 13-10**) would be widened and made compliant with ADA requirements for ramp grades, landings and handrails. This would entail relocating existing stairwells and extending the ramps. On both sides, there would be a single ramp with the same profile, although some intermediate columns would be necessary to support the subway structure and existing utilities. To replace the stairways that would be eliminated, a new double stairway system would be constructed serving the downtown local platform level of the Eighth Avenue Subway. One side of the stairway would aim towards the west ramp (Location #12 on **Figures 13-1, 13-4, 13-9, and 13-10**), providing a logical but somewhat lengthy path for downtown local subway passengers going to the existing Penn Station concourses. The other half of the stair would turn 90 degrees and aim directly towards the West End Concourse and the stair/escalator bank leading up to the Train Hall (Location #11 on **Figures 13-1, 13-4, 13-9, and 13-10**).

Within the mezzanine level of the Eighth Avenue Subway station at the West 33rd Street end, the configuration of the subway turnstiles would be modified to increase the width of the east-west through passageway and to provide zones outside of the main passageway where subway patrons could queue to enter the turnstiles or purchase MetroCards from vending machines or the customer service booth (see **Figure 13-10**).

Additional queuing space on the western side of the mezzanine would be created by relocating existing NYCT back-of-house facilities, including employee lockers and showers, to other locations within the subway station. The existing pair of stairways up to the express subway platform would be retained, as would the existing service booth on the east side of the mezzanine. A new bank of six turnstiles would be installed on the western side of the turnstile array. This bank of turnstiles would be placed at a 45-degree angle to provide a direct access



path from Moynihan Station and the West End Concourse and to enable turnstile queues to form outside of the main east-west flow passageway. The existing pair of high entry-exit turnstiles (HEETs) would be shifted to the west side of the turnstile array to make room for additional turnstiles on the east side. (These HEET units could be converted to standard turnstiles should NYCT determine that HEETs are not required at this location.)

On the eastern side of the mezzanine, a set of three turnstiles, also angled at 45 degrees, would be placed at the southeast corner of the array aimed at the east ramp at the 33rd Street Connector leading to the existing Penn Station concourses. In addition, two additional banks of four turnstiles each would be located on the eastern side of the turnstile array. The total number of turnstile units would be increased from 13 to 17.

### *Street Entrances*

There would be five separate entrances to the new station facilities and public spaces in the Farley Complex. These entrances would be in addition to the existing stairs on Eighth Avenue that lead up to the existing Post Office retail lobby.

New doorways would be provided at the northeast (Location #27) and southeast (Location #28) corners of the Farley Building to provide pedestrian access from Eighth Avenue directly into the Train Hall. (Locations #27 and #28 are shown on **Figures 13-5** and **13-7**.) Rail passengers would be able to walk into the building at street level from Eighth Avenue, descend down short ramps along the north and south edges of the building, and then directly enter the Train Hall on the north or south side.

Additional station entrances would be provided at the West 33rd Street and West 31st Street midblocks (Locations #29 and #30, respectively, shown on **Figures 13-6** and **13-8**), and at Ninth Avenue (Location #31 on **Figures 13-6** and **13-8**). Since West 31st and West 33rd Streets rise in grade from east to west adjacent to the Farley Complex, these three entrances would lead to the Intermodal Hall, from which passengers would then descend via the main escalator/stair bank into the Train Hall.

The West 33rd Street midblock entrance would be the primary entrance to the Moynihan Station facilities at the Farley Complex. A taxi stand would be located at this entrance, and a widened sidewalk would lead towards Ninth Avenue and the West Side, where extensive new development is planned in the future without the Project.

At Level C, a retail-lined corridor along the alignment of West 32nd Street would provide a direct pedestrian connection between the Intermodal Hall and the Ninth Avenue entrance to Moynihan Station. This corridor would be part of a multi-level retail complex but would also serve as one of the important routes to and from the station for west side residents and workers and those who may be arriving via taxi at Ninth Avenue.

The West 31st Street midblock entrance would be somewhat smaller, reflecting the lower estimated volume of pedestrians walking along this street, as well as physical constraints imposed by the existing Farley Complex.

Cumulatively, these five new station entrances would increase the number of major station entrances from 7 to 12 and increase the overall emergency egress capacity of the station by 40 percent.

## **USAGE OF STATION FACILITIES BY RAIL PASSENGERS**

Amtrak peak hour ridership is projected to increase as a result of the improved quality of service offered to Amtrak passengers by the Project and improved Empire Line service enabled by the conversion of the Diagonal Platform for use by Empire Line passengers. LIRR and NJT rail commuter traffic levels in the year 2015 are assumed to be the same in the Build and No Build conditions. The incremental passenger-handling capacity provided by the Project far exceeds the increase in railroad ridership that would be generated by the Project. In total, therefore, the Project would improve the average level of service throughout the station. Because Project improvements are focused on the western side of the station, with no construction proposed for the existing Penn Station between Eighth and Seventh Avenues, Project benefits would accrue primarily, but not exclusively, to passengers using station facilities west of Eighth Avenue. Nonetheless, these directly benefited passengers would number in the range of 20 to 25 percent of the station total.

In addition to increasing pedestrian circulation capacity, the proposed improvements would tend to redistribute passenger traffic somewhat within the station, moving the station's center of gravity westward with the development of the new Moynihan Station facilities west of Eighth Avenue. The increase in overall circulation and egress capacity would spread the peak volumes over a larger area and a greater number of facilities, which would lessen the utilization and peak congestion levels at many existing locations in the station. As demonstrated in **Tables 13-14** and **13-15**, many locations in the existing station would be improved by the Project in comparison with the No Build condition. However, not all locations within the existing station would improve, and the magnitude of improvement would be tempered by the continued attractiveness of the existing station concourses for pedestrian trips to and from the Seventh Avenue Subway and the street level east of the station. Although the Project would produce a westward shift of passenger traffic to and from the rail platforms, the predominant origins and destinations of trips to and from Penn Station are expected to continue to lie to the east of the station.

## **MORNING AND EVENING PEAK FLOWS**

Estimated pedestrian flow volumes and levels of service in the morning peak hour at selected locations within the existing Penn Station complex are presented in **Table 13-14** for existing conditions and for the year 2015 No Build and Build<sup>1</sup> conditions. The equivalent volumes and levels of service are shown for the evening peak hour in **Table 13-15**. In general, peak pedestrian flow rates with the implementation of the Project would be at or below the levels projected for the 2015 No Build condition. At most locations, peak flows would be lower in the evening peak than in the morning peak, and passengers would be able to circulate through the station facilities within the Farley Complex and 33rd Street Connector at acceptable levels of service.

Projected morning peak pedestrian flow volumes and levels of service in the year 2015 within the Farley Complex, including the West End Concourse, are presented in **Table 13-16a** for the Amtrak Station Option and **Table 13-16b** for the Open Station Option. Projected evening peak volumes and levels of service are presented in **Table 13-17a** for the Amtrak Station Option and **Table 13-17b** for the Open Station Option.

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<sup>1</sup> Conditions within the existing station were analyzed for one of the two Moynihan Station rail occupancy options: the Amtrak Station Option, which is considered representative of projected future conditions within the overall Penn Station complex.

**Table 13-14**

**Comparison of Weekday Morning Peak Pedestrian Flow Levels of  
Service at Selected Penn Station Locations**

Location		Circulation Element Type	Existing, No Build, and Build Condition	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
1	Main Entrance, 7th & 32nd	Stair + 2 Escs	Existing (2008)	11,881	4,158	16.5	15.4	E
			2015 No Build	12,161	4,256	16.5	15.6	E
			2015 Build	10,978	3,842	16.5	14.1	E
2	LIRR Entrance, 7th & 34th	Stair + 3 Escs	Existing (2008)	9,246	3,236	13.5	14.9	E
			2015 No Build	10,423	3,648	13.5	16.5	E
			2015 Build	10,232	3,581	13.5	16.3	E
3	NJ Transit Entrance, 7th & 31st	Stair + 2 Escs	Existing (2008)	--	--	--	--	--
			2015 No Build	5,952	2,083	12.5	9.8	C/D
			2015 Build	4,704	1,646	12.5	7.8	C
4	33rd St Connecting Concourse West of LIRR Main Gate Area	Corridor	Existing (2008)	10,279	3,598	20.0	13.2	C
			2015 No Build	12,747	4,461	20.0	16.4	D
			2015 Build	13,377	4,682	20.0	17.2	D
5	33rd St Connecting Concourse East of Exit Concourse	Corridor	Existing (2008)	11,005	3,852	19.0	14.9	C/D
			2015 No Build	13,936	4,878	19.0	18.8	D
			2015 Build	13,541	4,739	19.0	18.3	D
6	33rd St Connecting Concourse East of 8th Ave Subway	Corridor	Existing (2008)	11,859	4,151	26.0	11.7	C
			2015 No Build	15,532	5,436	26.0	15.3	C/D
			2015 Build	14,795	5,178	26.0	14.6	C/D
7	Hilton Passageway, East End	Corridor	Existing (2008)	6,322	2,213	12.0	13.5	C
			2015 No Build	8,639	3,024	12.0	18.5	D
			2015 Build	7,462	2,612	12.0	16.0	D
8	33rd Street Connector East Ramp	Corridor	Existing (2008)	6,950	2,432	14.0	12.7	C
			2015 No Build	8,270	2,896	14.0	15.2	D
			2015 Build	10,900	3,800	18.5	15.0	D
9	33rd Street Connector West Ramp	Corridor	Existing (2008)	3,220	1,125	11.0	8.2	B
			2015 No Build	4,090	1,430	11.0	10.4	C
			2015 Build	10,290	3,602	19.5	14.8	C/D
10	West End Concourse North End	Corridor	Existing (2008)	6,208	2,173	13.0	12.3	C
			2015 No Build	8,093	2,833	13.0	14.5	C/D
			2015 Build	10,159	3,556	25.0	9.5	B
11	8th Ave Subway Downtown Local Stair to West End Concourse	Stair	Existing (2008)	1,980	694	7.0	7.9	C
			2015 No Build	2,830	990	7.0	11.3	D
			2015 Build	2,069	724	10.0	5.8	B
12	8th Ave Subway Downtown Local Stair to Subway Mezzanine	Stair	Existing (2008)	1,830	642	8.2	6.3	B
			2015 No Build	1,980	693	8.2	6.7	C
			2015 Build	2,270	794	10.0	6.4	B
13a	8th Ave Subway Uptown Local Stair to Penn Station Connecting Conc	Stair G1	Existing (2008)	5,020	1,757	16.0	9.4	C
			2015 No Build	7,610	2,663	16.0	13.4	E
			2015 Build	7,170	2,511	16.0	12.5	D
14a	8th Ave Subway Express Stair North	Stair M21/22	Existing (2008)	1,150	403	7.0	4.6	B
			2015 No Build	1,270	444	7.0	5.1	B
			2015 Build	2,590	907	7.0	9.4	C
15a	8th Ave Subway Express Stair South	Stair M23/24	Existing (2008)	2,160	755	7.0	8.6	C
			2015 No Build	2,850	999	7.0	11.5	D
			2015 Build	2,390	834	7.0	9.6	C
16a	8th Ave Subway N67 Mezzanine Turnstiles	Turnstiles	Existing (2008)	5,760	2,016	13 units	12.0	B
			2015 No Build	7,230	2,531	13 units	15.1	C
			2015 Build	8,760	3,068	17 units	14.1	C

**Note:** See Figures 13-1 through 13-10.

**Table 13-15**

**Comparison of Weekday Evening Peak Pedestrian Flow Levels of Service  
at Selected Penn Station Locations**

Location		Circulation Element Type	Existing, No Build, and Build Condition	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
1	Main Entrance, 7th & 32nd	Stair + 2 Escs	Existing (2008)	10,160	3,556	16.5	11.8	D
			2015 No Build	10,648	3,727	16.5	12.2	D
			2015 Build	9,731	3,406	16.5	11.2	D
2	LIRR Entrance, 7th & 34th	Stair +3 Escs	Existing (2008)	7,668	2,684	13.5	11.3	D
			2015 No Build	9,342	3,270	13.5	13.7	E
			2015 Build	8,819	3,087	13.5	12.8	D/E
3	NJT Entrance, 7th & 31st	Stair + 2 Escs	Existing (2008)	--	--	--	--	--
			2015 No Build	5,775	2,021	12.5	8.8	C
			2015 Build	4,578	1,602	12.5	6.9	B/C
4	33rd St Connecting Concourse West of LIRR Main Gate Area	Corridor	Existing (2008)	8,430	2,951	20.0	10.8	C
			2015 No Build	10,536	3,688	20.0	13.5	C
			2015 Build	11,172	3,910	20.0	14.3	C
5	33rd St Connecting Concourse East of Exit Concourse	Corridor	Existing (2008)	8,484	2,969	19.0	11.5	C
			2015 No Build	10,659	3,731	19.0	14.4	C
			2015 Build	11,290	3,952	19.0	15.3	C/D
6	33rd St Connecting Concourse East of 8th Ave Subway	Corridor	Existing (2008)	13,633	4,772	26.0	13.5	C
			2015 No Build	16,911	5,919	26.0	16.7	D
			2015 Build	16,325	5,714	26.0	16.1	D
7	Hilton Passageway, East End	Corridor	Existing (2008)	5,328	1,865	12.0	11.4	C
			2015 No Build	7,342	2,570	12.0	15.7	D
			2015 Build	6,145	2,151	12.0	13.1	C
8	33rd Street Connector East Ramp	Corridor	Existing (2008)	7,870	2,754	14.0	15.8	D
			2015 No Build	10,720	3,753	14.0	21.4	E
			2015 Build	12,300	4,308	18.5	18.6	D
9	33rd Street Connector West Ramp	Corridor	Existing (2008)	1,720	603	11.0	4.0	A
			2015 No Build	2,490	871	11.0	5.8	A
			2015 Build	7,350	2,571	19.5	10.5	C
10	West End Concourse North End	Corridor	Existing (2008)	5,014	1,755	13.0	9.0	B
			2015 No Build	6,625	2,319	13.0	11.9	C
			2015 Build	8,641	3,024	25.0	8.1	B
11	8th Ave Subway Downtown Local Stair to West End Concourse	Stair	Existing (2008)	2,745	961	7.0	10.1	C/D
			2015 No Build	3,646	1,276	7.0	13.4	D/E
			2015 Build	3,555	1,244	10.0	8.3	C
12	8th Ave Subway Downtown Local Stair to Subway Mezzanine	Stair	Existing (2008)	3,315	1,160	8.2	10.4	C/D
			2015 No Build	3,925	1,374	8.2	12.3	D
			2015 Build	3,868	1,354	10.0	9.0	C
13a	8th Ave Subway Uptown Local Stair to Penn Station Connecting Conc	Stair G1	Existing (2008)	2,940	1,030	15.0	5.1	B
			2015 No Build	3,920	1,372	15.0	6.3	B
			2015 Build	3,880	1,359	15.0	6.3	B
14a	8th Ave Subway Express Stair North	Stair M21/22	Existing (2008)	1,320	461	7.0	5.3	B
			2015 No Build	1,750	612	7.0	7.0	C
			2015 Build	2,080	726	7.0	8.2	C
15a	8th Ave Subway Express Stair South	Stair M23/24	Existing (2008)	1,840	643	7.0	6.8	B
			2015 No Build	2,500	875	7.0	9.1	C
			2015 Build	2,550	893	7.0	9.4	C
16a	8th Ave Subway N67 Mezzanine Turnstiles	Turnstiles	Existing (2008)	6,450	2,257	13 units	13.0	C
			2015 No Build	8,680	3,039	13 units	17.8	C
			2015 Build	9,050	3,166	17 units	13.0	C

**Note:** See Figures 13-1 through 13-10.

**Table 13-16a**

**Weekday Morning Peak Pedestrian Flow Levels of Service within Farley Complex  
Amtrak Station Option—2015 Build**

	Location	Circulation Element Type	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
13	Train Hall North Side	Corridor	6,837	2,392	47.0	3.7	A
14	Train Hall South Side	Corridor	2,826	989	33.0	2.2	A
15	Train Hall West Retail Corridor	Corridor	1,286	450	17.0	1.9	A
16	Train Hall Grand Stair/Escalator - Up	2 escalators plus 2 stairs	4,438	1,553	22.0	5.0	A/B
	Train Hall Grand Stair/Escalator - Down	2 escalators plus 2 stairs	2,152	753	22.0	2.4	A
17	North Edge Vertical Circulation - Up	1 escalator plus stair	2,203	771	8.5	6.3	B
	North Edge Vertical Circulation - Down	1 escalator	1,479	518	4.5	8.2	C
18	South Edge Vertical Circulation	Stair	420	147	7.5	1.5	A
19	Train Hall Vertical Circulation to West End Concourse -- Northeast Corner - Up	1 escalator	970	340	4.5	5.4	A/B
	Train Hall Vertical Circulation to West End Concourse -- Northeast Corner - Down	Stair	563	197	11.0	1.2	A
20	Train Hall Vertical Circulation to West End Concourse -- Southeast Corner - Up	1 escalator	817	202	4.5	3.0	A
	Train Hall Vertical Circulation to West End Concourse -- Southeast Corner - Down	Stair	239	84	11.0	0.6	A
21	North Ramp	Corridor	4,594	1,608	17.0	6.9	A/B
22	South Ramp	Corridor	2,388	836	17.0	3.6	A
23	West End Concourse - North Cordon	Corridor	5,948	2,082	19.0	8.0	B
24	West End Concourse - North Central Cordon	Corridor	5,977	2,092	19.0	8.0	B
25	West End Concourse - South Central Cordon	Corridor	2,915	1,020	19.0	3.9	A
26	West End Concourse - South Cordon	Corridor	1,482	519	19.0	2.0	A
27	Farley Eighth Ave Entrance at 33rd Street	Doorway	3,993	1,397	6 units	17.1	B
28	Farley Eighth Ave Entrance at 31st Street	Doorway	2,187	766	6 units	9.4	A
29	Farley 33rd Street Midblock Entrance	Doorway	4,282	1,499	12 units	9.2	A
30	Farley 31st Street Midblock Entrance	Doorway	930	326	6 units	4.0	A
31	Farley Ninth Avenue Entrance	Doorway	936	328	12 units	2.0	A
<b>Note:</b> See Figures 13-5 through 13-10.							

**Table 13-16b**

**Weekday Morning Peak Pedestrian Flow Levels of Service within Farley Complex  
Open Station Option—2015 Build**

	Location	Circulation Element Type	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
13	Train Hall North Side	Corridor	5,440	1,904	47.0	3.0	A
14	Train Hall South Side	Corridor	2,513	879	33.0	2.0	A
15	Train Hall West Retail Corridor	Corridor	n.a.	n.a.	n.a.	n.a.	n.a.
16	Train Hall Grand Stair/Escalator - Up	2 escalators plus 2 stairs	3,949	1,382	22.0	4.4	A
	Train Hall Grand Stair/Escalator - Down	2 escalators plus 2 stairs	1,183	414	22.0	1.3	A
17	North Edge Vertical Circulation - Up	1 escalator plus stair	1,587	555	8.5	4.6	A/B
	North Edge Vertical Circulation - Down	1 escalator	1,379	483	4.5	7.5	B/C
18	South Edge Vertical Circulation	Stair	410	144	7.5	1.5	A
19	Train Hall Vertical Circulation to West End Concourse -- Northeast Corner - Up	1 escalator	892	312	4.5	4.9	A/B
	Train Hall Vertical Circulation to West End Concourse -- Northeast Corner - Down	Stair	407	143	11.0	1.0	A
20	Train Hall Vertical Circulation to West End Concourse -- Southeast Corner - Up	1 escalator	716	196	4.5	3.0	A
	Train Hall Vertical Circulation to West End Concourse -- Southeast Corner - Down	Stair	157	55	11.0	0.4	A
21	North Ramp	Corridor	3,936	1,377	17.0	6.0	A
22	South Ramp	Corridor	2,078	727	17.0	3.1	A
23	West End Concourse - North Cordon	Corridor	5,683	1,989	19.0	7.7	B
24	West End Concourse - North Central Cordon	Corridor	5,784	2,025	19.0	7.8	B
25	West End Concourse - South Central Cordon	Corridor	2,785	975	19.0	3.8	A
26	West End Concourse - South Cordon	Corridor	1,446	506	19.0	2.0	A
27	Farley Eighth Ave Entrance at 33rd Street	Doorway	3,704	1,296	6 units	15.8	B
28	Farley Eighth Ave Entrance at 31st Street	Doorway	2,067	724	6 units	8.8	A
29	Farley 33rd Street Midblock Entrance	Doorway	3,719	1,302	12 units	8.0	A
30	Farley 31st Street Midblock Entrance	Doorway	921	323	6 units	4.0	A
31	Farley Ninth Avenue Entrance	Doorway	930	326	12 units	2.0	A
<b>Note: See Figures 13-5 through 13-10.</b>							

**Table 13-17a**

**Weekday Evening Peak Pedestrian Flow Levels of Service within Farley Complex  
Amtrak Station Option—2015 Build**

	Location	Circulation Element Type	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
13	Train Hall North Side	Corridor	5,426	1,899	47.0	3.0	A
14	Train Hall South Side	Corridor	1,711	599	33.0	1.3	A
15	Train Hall West Retail Corridor	Corridor	1,335	468	17.0	2.0	A
16	Train Hall Grand Stair/Escalator - Up	2 escalators plus 2 stairs	1,808	633	22.0	2.0	A
	Train Hall Grand Stair/Escalator - Down	2 escalators plus 2 stairs	6,230	2,181	22.0	6.9	B/C
17	North Edge Vertical Circulation - Up	1 escalator plus stair	1,906	667	4.5	10.3	C/D
	North Edge Vertical Circulation - Down	1 escalator	3,361	1,176	8.5	9.6	C/D
18	South Edge Vertical Circulation	Stair	208	73	7.5	0.7	A
19	Train Hall Vertical Circulation to West End Concourse -- Northeast Corner -- Up	1 escalator	344	120	4.5	1.9	A
	Train Hall Vertical Circulation to West End Concourse -- Northeast Corner -- Down	Stair	3,721	1,302	11.0	8.3	C
20	Train Hall Vertical Circulation to West End Concourse -- Southeast Corner -- Up	1 escalator	180	63	4.5	0.9	A
	Train Hall Vertical Circulation to West End Concourse -- Southeast Corner -- Down	Stair	860	301	11.0	1.9	A
21	North Ramp	Corridor	3,380	1,183	17.0	5.1	A
22	South Ramp	Corridor	1,304	457	17.0	1.9	A
23	West End Concourse - North Cordon	Corridor	3,509	1,228	19.0	4.7	A
24	West End Concourse - North Central Cordon	Corridor	3,387	1,186	19.0	4.6	A
25	West End Concourse - South Central Cordon	Corridor	1,226	429	19.0	1.7	A
26	West End Concourse - South Cordon	Corridor	804	282	19.0	1.1	A
27	Farley Eighth Ave Entrance at 33rd Street	Doorway	2,779	973	6 units	11.9	A
28	Farley Eighth Ave Entrance at 31st Street	Doorway	1,105	387	6 units	4.8	A
29	Farley 33rd Street Midblock Entrance	Doorway	5,953	2,083	12 units	12.7	A
30	Farley 31st Street Midblock Entrance	Doorway	739	259	6 units	3.1	A
31	Farley Ninth Avenue Entrance	Doorway	734	257	12 units	1.6	A
<b>Note: See Figures 13-5 through 13-10.</b>							

**Table 13-17b**

**Weekday Evening Peak Pedestrian Flow Levels of Service within Farley Complex**  
**Open Station Option—2015 Build**

	Location	Circulation Element Type	Peak Hour Volume	Peak 15 Min. Volume	Effective Width (ft.)	Peak Flow Rate (p/m/ft)	Level of Service
13	Train Hall North Side	Corridor	4,111	1,439	47.0	2.2	A
14	Train Hall South Side	Corridor	1,363	478	33.0	1.1	A
15	Train Hall West Retail Corridor	Corridor	n.a.	n.a.	n.a.	n.a.	n.a.
16	Train Hall Grand Stair/Escalator - Up	2 escalators plus 2 stairs	1,425	499	22.0	1.6	A
	Train Hall Grand Stair/Escalator - Down	2 escalators plus 2 stairs	5,614	1,965	22.0	6.3	B
17	North Edge Vertical Circulation - Up	1 escalator plus stair	1,438	503	4.5	7.9	C
	North Edge Vertical Circulation - Down	1 escalator	3,048	1,067	8.5	8.8	C
18	South Edge Vertical Circulation	Stair	189	66	7.5	0.6	A
19	Train Hall Vertical Circulation to West End Concourse -- Northeast Corner -- Up	1 escalator	276	97	4.5	1.4	A
	Train Hall Vertical Circulation to West End Concourse -- Northeast Corner -- Down	Stair	2,255	789	11.0	5.1	A/B
20	Train Hall Vertical Circulation to West End Concourse -- Southeast Corner -- Up	1 escalator	159	56	4.5	0.9	A
	Train Hall Vertical Circulation to West End Concourse -- Southeast Corner -- Down	Stair	456	160	11.0	1.1	A
21	North Ramp	Corridor	2,650	927	17.0	4.0	A
22	South Ramp	Corridor	957	336	17.0	1.4	A
23	West End Concourse - North Cordon	Corridor	3,126	1,094	19.0	4.2	A
24	West End Concourse - North Central Cordon	Corridor	3,058	1,071	19.0	4.1	A
25	West End Concourse - South Central Cordon	Corridor	1,060	371	19.0	1.4	A
26	West End Concourse - South Cordon	Corridor	745	261	19.0	1.0	A
27	Farley Eighth Ave Entrance at 33rd Street	Doorway	2,450	858	6 units	10.5	A
28	Farley Eighth Ave Entrance at 31st Street	Doorway	965	338	6 units	4.2	A
29	Farley 33rd Street Midblock Entrance	Doorway	5,310	1,858	12 units	11.4	A
30	Farley 31st Street Midblock Entrance	Doorway	728	255	6 units	3.1	A
31	Farley Ninth Avenue Entrance	Doorway	727	254	12 units	1.6	A
<b>Note: See Figures 13-5 through 13-10.</b>							

#### EXISTING PENN STATION COMPLEX

In general, the Project would create new train station facilities west of Eighth Avenue that would divert rail passengers from the congested concourses, entrances and vertical circulation elements in the existing station. At most locations in the station, the diversion of rail passengers away from these facilities would offset the small increase in Amtrak rail passenger traffic that would be attributable to the Project and which would mostly flow through the Farley Complex under the Amtrak Station Option. At one location on the West 33rd Street Connecting Concourse—to the



west of the LIRR Main Gate Area—the morning peak No Build condition would be at a congested LOS D and the peak pedestrian flow rate would increase for the Build condition, from 16.4 to 17.2 pedestrians per minute per foot of effective corridor width. The Project would not generate a significant adverse impact, however, since peak conditions would remain at LOS D.

In the West 33rd Street Connecting Concourse on Level A, peak flow conditions would remain in the LOS C/D to D range, but the density of peak flows in the Build condition would be slightly lower than for the No Build condition at all locations except the portion of the concourse immediately west of the LIRR Main Gate Area, which would see a slight rise in flow rate during the morning peak but would remain within the LOS D range. Similarly, the three main station entrances at the Seventh Avenue end of the station would see slight reductions in traffic in the Build condition compared to the No Build condition. The main station entrance at Seventh Avenue and 32nd Street (Location #1 on **Figures 13-2 and 13-3**) would remain at LOS E in the morning peak and LOS D in the evening, with flow densities that are slightly improved in the Build condition over the No Build condition. The main LIRR 34th Street entrance (Location #2 on **Figures 13-1 and 13-3**) also would remain at LOS E in the morning and improve from LOS E to LOS D/E in the evening peak. Peak flows at the new NJT West 31st Street entrance (Location #3 on **Figures 13-2 and 13-3**) also would improve slightly—from LOS C/D to LOS C in the morning peak, and from LOS C to LOS B/C in the evening peak.

Within the Eighth Avenue Subway station, the Project would reconstruct and widen the two stairs leading down from the downtown local platform to the level of the West End Concourse and 33rd Street Connector (Locations #11 and #12 on **Figures 13-1, 13-4, 13-9, and 13-10**). Though subway passenger traffic on these stairs would increase in the Build condition, the number of rail passengers and other pedestrians using these stairs as a shortcut route to the street would decline, since the Project would provide alternative pedestrian paths to street level within the Farley Complex. Overall, the level of service on these stairways would improve between the No Build and Build conditions.

### *MOYNIHAN STATION TRAIN HALL*

The proposed Project would bring rail passengers and other pedestrians into areas of the Farley Complex that heretofore have been restricted to Postal Service employees. Major changes to the pedestrian circulation system within the Farley Complex are designed to accommodate this pedestrian traffic. The Train Hall would be a large, open public space punctuated by the escalators that provide direct access to the platforms. Rail passengers and the general public would be able to circulate freely through the Train Hall during the weekday peak periods, with peak Levels of Service projected in the A to B range—for the Amtrak Station and Open Station Options. Estimated peak pedestrian volumes within the Train Hall in the year 2015 would be significantly lower for the Open Station Option than the Amtrak Station Option, since Amtrak departing passengers would not be present within the Train Hall. The availability of waiting area within the Train Hall would be expected to attract a slightly higher proportion of LIRR passengers, but the overall levels of passenger traffic would be similar for the two station options.

When trains are boarding at a particular escalator, passenger queues would temporarily block through-circulation. During these times, pedestrians would still be able to circulate around the edges of the Train Hall, which would have sufficient width to accommodate circulation needs at LOS B or better. The passageways leading into the Train Hall from the north and south (Locations #13 and #14 on **Figures 13-5 and 13-7**) would operate at a free-flowing LOS A, as would the corridor leading westward through the retail zone (Location #15). The main bank of

stairs and escalators leading from the Train Hall to the Intermodal Hall (Location #16 on **Figures 13-5, 13-6, 13-7, and 13-8**) would be free-flowing at all times, reaching LOS B conditions in the peak direction of flow (up in the morning, down in the evening).

Pedestrian flows within the Intermodal Hall and connecting passageways are projected to be at LOS A during the morning and evening peaks.

#### *MOYNIHAN STATION ENTRANCES*

The new street entrances at the northeast and southeast corners of the Farley Building to the concourse would each have at least three sets of double doors. The northeast entrance (Location #27 on **Figures 13-5 and 13-7**)—closest to the core of Midtown Manhattan—is expected to receive the highest use of the two Eighth Avenue entrances, with a pedestrian volume of approximately 4,000 in the 2015 morning peak hour and 2,800 in the evening peak hour, in the Amtrak Station Option. Estimated 2015 volumes would be 3,700 in the morning peak hour and 2,450 in the evening peak hour, for the Open Station Option. Pedestrian traffic for both rail occupancy options is projected to be in the range of LOS A during the morning and evening peak periods. The southeast entrance (Location #28 on **Figures 13-5 and 13-7**) would have lower usage than the northeast entrance and would also function at LOS A.

The primary entrance and exit for rail passengers with origins or destinations on the far west side of Manhattan, and for taxi passengers, is expected to be the midblock entrance at West 33rd Street (Location #29 on **Figures 13-6 and 13-8**). This entrance would be most heavily used in the evening peak, with almost 6,000 pedestrians using it during the 2015 PM peak hour. With twelve door openings, this entrance would operate at LOS A during the 2015 peaks.

The station and retail entrance at Ninth Avenue (Location #31 on **Figures 13-6 and 13-8**), and the West 31st Street midblock entrance (Location #30 on **Figures 13-6 and 13-8**), are expected to have pedestrian volumes of between 900 and 1,000 during the morning peak hour and between 700 and 800 in the evening peak hour—both providing LOS A.

#### *WEST END CONCOURSE—SOUTH END*

The southern portion of the West End Concourse would be used by some arriving NJT and Amtrak passengers, who would ascend the stairs from Platforms 3 through 8 (Tracks 5-16) and then proceed to either the subways or up to the Train Hall and the street. The level of service at the south end of the West End Concourse in the morning peak would be comfortably in the LOS A range, for both the Amtrak Station and Open Station Options. Volumes would be extremely light in the evening peak, since only a limited number of NJT passengers are assumed to board trains from this location (because of the lack of direct access to Platforms 1 and 2 [Tracks 1-4]).

The southern portion of the West End Concourse (Locations #25 and #26 on **Figure 13-9**) would be designed to be larger than needed for 2015 peak flows, allowing for future use of the concourse by boarding NJT passengers and allowing for a potential future West 31st Street Connector beneath Eighth Avenue (that is not part of the Project) as a second route for accessing the existing Penn Station concourses.

#### *WEST END CONCOURSE—NORTH END*

The West End Concourse would be more heavily used at its northern end (Locations #23 and #24 on **Figure 13-9**) because of the 33rd Street Connector to the subways and existing Penn Station concourses. Doubling the width of the existing West End Concourse would enable the

northern portion of the concourse to handle projected ridership growth and serve Amtrak and NJT passengers as well as those of the LIRR—at acceptable peak levels of service for pedestrian flows. For the Amtrak Station Option, the portion of the concourse in the vicinity of Platforms 8 and 9 (Location #23) would have approximately 6,000 passengers per hour in the morning peak and 3,500 passengers per hour in the evening peak circulating along the concourse in the north-south direction—in addition to those passengers who may wait within the concourse for information about departing trains. This would result in flow conditions at LOS B in the morning and LOS A in the evening, assuming that departing commuters waiting at this level for information on boarding track assignments occupy spaces away from the main flow corridors—which would be the case under normal railroad operating conditions.

The Open Station Option would generate slightly lower levels of pedestrian activity at this location than the Amtrak Station Option—5,800 pedestrian trips in the 2015 morning peak hour and 3,100 trips in the evening peak hour. Significant numbers of departing Amtrak passengers coming from the subways would walk through the north end of the West End Concourse in the Amtrak Station Option, but they would tend to remain within the existing portions of Penn Station in the Open Station Option. The peak level of service for pedestrian flows within the northern portion of the West End Concourse would be the same in both options—LOS B in the morning peak and LOS A in the evening peak.

The configuration of the West End Concourse platform stairs would affect the location where commuter passengers would wait to receive train information. Waiting passengers would occupy the spaces along the west wall of the concourse. These are the locations where train information displays would be positioned. The east side of the concourse would be primarily for north-south pedestrian circulation.

### *33RD STREET CONNECTOR*

The existing connector, which was initially constructed as the 33rd Street mezzanine of the Eighth Avenue Subway and later modified to provide access to the LIRR West End Concourse, is used largely by subway patrons and LIRR riders, with some additional pedestrians using the ramps and stairs as a walking route to the far West Side from the existing Penn Station concourses. No Build conditions in 2015 are projected to reach a congested LOS D during both the morning and evening peak hours (Locations #8 and #9 on **Figures 13-1, 13-4, 13-9, and 13-10**).

The Project would increase the number of pedestrians moving through the 33rd Street Connector compared with the No Build condition. Amtrak boarding passengers coming from the subways would use the Connector to access Amtrak's facilities at the Moynihan Station Train Hall. A limited number of NJT boarding passengers, and significant numbers of arriving NJT and Amtrak passengers also would use the Connector, as would non-railroad passengers going to and from locations on the far West Side and the destination retail proposed for the Farley Complex.

The Project also would widen the east and west ramps and modify the subway turnstile array to create as wide a public walkway as possible within the physical constraints of the space, and would improve ADA compliance. Peak hour flows in the year 2015 on the east ramp (Location #8) are projected to increase from 8,300 to 10,900 in the morning and from 10,700 to 12,300 in the evening. Evening flows are heavier in this area because of the relatively high number of railroad commuters who transfer from the downtown local C and E lines of the Eighth Avenue Subway and head towards the existing Penn Station concourses in the evening. The morning peak movement in the opposite direction does not utilize the 33rd Street Connector. With the widening of the east ramp, which would increase its effective width from 14 to 18.5 feet, the

morning peak level of service would remain within the LOS D range, but the density of traffic and level of crowding, measured in pedestrian per minute per foot of effective width (p/m/ft), would be reduced slightly to 15.0 p/m/ft compared to the No Build condition of 15.2 p/m/ft. In the evening peak, the level of service on the east ramp would improve from LOS E (21.4 p/m/ft) in the No Build condition to LOS D (18.6 p/m/ft) in the Build condition.

The west ramp (Location #9) would see an even heavier increase in pedestrian activity, increasing from 4,100 to 10,300 pedestrians per hour in the morning peak hour and from 2,500 to 7,350 pedestrians per hour in the evening peak hour. This increase would be attributable to the increased rail passenger and pedestrian traffic that would be generated by the proposed Moynihan Station facilities west of Eighth Avenue, as well as the westward shift of the downtown local subway stairways (Locations #11 and #12 on **Figures 13-1, 13-4, 13-9, and 13-10**), which would increase the number of subway riders using the west ramp. The ramp would be widened, increasing its effective width from 11 to 19.5 feet. During the morning peak, the west ramp would operate at LOS C during the morning peak. With the wider ramp and increased traffic in the Build condition, the traffic density on the ramp would increase from 10.4 to 14.8 p/m/ft but would still remain within the acceptable LOS C/D threshold of 15.0 p/m/ft. Evening peak conditions on the west ramp would be at LOS C (10.5 p/m/ft).

The Project would increase the volume of pedestrian traffic at the Eighth Avenue Subway mezzanine turnstiles within the 33rd Street Connector (known as Control Area N67 on subway station drawings). In the morning peak, the predominant flow is inbound to the subway. The flows are heavier in the evening, with the predominant flow in the outbound direction but with more balance between inbound and outbound flows. In the 2015 morning peak hour, flows through the turnstiles are projected to increase from 7,230 (with 5,350 in the inbound direction) in the No Build condition to 8,760 (with 6,590 in the inbound direction) in the Build condition. With the increase in the number of turnstiles from 13 to 17, the peak level of service would remain at LOS C.

In the 2015 evening peak hour, turnstile volumes would increase from 8,680 (5,890 outbound) in the No Build condition to 9,050 (6,070 outbound) in the Build condition. As in the morning, the peak level of service at the turnstile array would remain at LOS C.

The volume of pedestrian traffic on the two subway express platform stairways would also increase as a result of the Project. The distribution of traffic between these two stairs would be a function of the position of the stairs relative to the location of the trains at the platform level, and the location and orientation of the turnstiles at the mezzanine level. The northernmost stair (Location #14a, M21/M22, on **Figures 13-4 and 13-10**) is the more heavily used for passengers descending from platform level. The current turnstile arrangement favors the use of the southernmost stair (Location #15a, M23/M24, on **Figures 13-4 and 13-10**) for passengers entering the subway through the turnstiles and ascending to platform level. In the 2015 No Build condition, the southerly stair would be more heavily utilized. The shift in the turnstile configuration that is proposed as part of the Project would provide additional turnstiles that have a clear pathway to the northerly stair, which would result in somewhat higher utilization of the northerly stair. This would tend to better balance the peak flows between the two stairways and enable the increased volumes in the Build condition to be accommodated at an acceptable level of service.

Morning peak volumes on the southerly stair (Location #15a) in the No Build condition will be 2,850 (2,450 up, 400 down) and in the Build condition would be 2,390 (1,920 up, 470 down). The level of service would improve from LOS D to LOS C in the Build condition. Evening peak volumes on this stair in the No Build condition will be 2,500 (1,370 up, 1,130 down) and in the

Build condition would be 2,550 (1,380 up, 1,170 down). The peak level of service in both cases would be LOS C.

At the northerly stair (Location #14a), the morning peak No Build volume will be 1,270 (320 up, 950 down) at LOS B, and the corresponding Build volume would be 2,590 (1,500 up, 1,090 down), at LOS C. Evening peak volumes on this stair in the No Build condition will be 1,750 (140 up, 1,610 down) and in the Build condition would be 2,080 (420 up, 1,660 down). The peak level of service in both conditions would be LOS C.

The existing stairway to the uptown local subway platform from the Penn Station 33rd Street Connecting Concourse (Location #13a, NYCT designation G1, on **Figures 13-4** and **13-10**) is 17 feet wide and provides the primary route from Penn Station to the uptown local subway services—a heavy volume of flow in the morning peak period. Morning peak No Build conditions in 2015 are projected to reach LOS E, with 7,610 peak hour trips (7,140 in the up direction), producing a flow density of 13.4 p/m/ft. With the proposed Project, an increased number of rail passengers would arrive via the West End Concourse and Moynihan Station, and a share of these passengers would get to the Eighth Avenue uptown local via the mezzanine turnstiles and the paid corridor leading to the 34th Street mezzanine. This would reduce the morning peak hour volume of pedestrians on Stair 13a to 7,170 (6,620 in the up direction), improving the level of service to LOS D, at 12.5 p/m/ft. Evening peak conditions at this location would be in the LOS B range in both cases.

Overall, peak conditions in the year 2015 within the 33rd Street Connector and at the 33rd Street mezzanine of the Eighth Avenue Subway would either be at an acceptable level of service (LOS C or better) or would be improved over No Build conditions in locations where peak conditions are projected to be congested (LOS D or E). Therefore, the Project would not generate adverse impacts on pedestrian flows in this area of the station complex.

### *VERTICAL CIRCULATION*

The Project would construct four Level A-to-Level B vertical circulation elements between the West End Concourse and the Train Hall. The northernmost location, along the north edge of the Farley Building (Location #17 on **Figures 13-5**, **13-7**, and **13-9**), would be the primary walking route between the Train Hall and the West 33rd Street Connector. It would carry Amtrak boarding passengers between the subways and the Train Hall and would also be used heavily by commuter passengers and non-railroad pedestrians. These non-railroad pedestrians would include commuters walking between the subway stations and workplaces situated to the west of Penn Station, patrons of the proposed retail development in the Farley Complex, and people using the available indoor route to walk to and from locations on the far west side of Manhattan. Flows would be relatively heavy in both directions during the peak periods, but volumes would be more heavily upward in the morning peak and downward in the evening peak. In the Amtrak Station Option, two escalators and a stair would be required to handle the projected flows at an acceptable level of service. (LOS B and C in the morning peak and LOS C/D in the evening peak). Volumes on these vertical circulation elements would be slightly lower in the Open Station Option, with morning peak levels of service in the A/B to B/C range and evening peak conditions at LOS C.

The southernmost vertical circulation element (Location #18 on **Figures 13-5**, **13-7**, and **13-9**) also would have two possible variations. Projected usage of this vertical circulation element would be substantially lower than on the north side of the building, because of the relatively low level of NJT boarding activity at the south end of the West End Concourse. This stair or

stair/escalator combination would operate at LOS A at all times in the 2015 Build condition, for both Moynihan Station rail occupancy options. This location would become more important and carry heavier volumes if pedestrian access to Platforms 1 and 2 (Tracks 1-4), and/or a 31st Street Connector passageway, were provided at some point in the future.<sup>1</sup>

The other two A-to-B vertical circulation elements would be located along the eastern wall of the Train Hall. Upward running escalators at these locations would serve passengers arriving at the West End Concourse on any of the three railroads who wish to ascend to the Train Hall and then out to the street west of Eighth Avenue. The element at the northeast corner of the Train Hall (Location #19 on **Figures 13-5, 13-7, and 13-9**), situated approximately above Platform 8 (Tracks 15 and 16), also would serve as the primary platform access point for LIRR passengers who choose to wait for train information within the Train Hall. The escalator would accommodate 100 percent of the upward flows at this location during both the morning and evening peaks, at LOS A/B and LOS A, respectively. The adjoining stairway would need to be a minimum of 12 feet wide to accommodate projected evening peak downward flows of boarding LIRR passengers at LOS C. The stair would operate at LOS A during the morning peak.

The vertical circulation element at the southeastern corner of the Train Hall (Location #20 on **Figures 13-5, 13-7, and 13-9**), approximately above Platform 4 (Tracks 7 and 8), would correspond to the vertical circulation element at the northeast corner (Location #19). In the morning peak, it would be used mostly by arriving rail passengers ascending from the West End Concourse to street level. In the evening, it would primarily serve NJT boarding passengers. Because only a small number of these passengers are projected to use the Train Hall in 2015, since there would be no direct access to NJT trains using Platforms 1 and 2 (Tracks 1-4), the pedestrian flows at this element would be substantially less than at the element at the northeast corner of the Train Hall, and LOS A would prevail throughout the day.

## **EVENING PEAK ACCUMULATIONS**

**Table 13-18** compares estimated peak occupancies of the various concourses and waiting areas by rail passengers during normal operating conditions, with minor train delays that result in variations to the normal track assignments for boarding trains. These conditions occur periodically within the station for any of a number of reasons—but not frequently enough to be appropriate as a test for environmental impact significance. However, this comparative analysis serves to illustrate one of the significant benefits of the Project, compared with the No Build condition, where the ability to spread boarding passengers around a greater number of concourses and waiting areas in the evening peak provides a greater reservoir of public space for accommodating large volumes of passengers. **Table 13-8** compares the existing, 2015 No Build, and 2015 Build conditions, including both the Amtrak Station and Open Station Options. The projected evening peak occupancy of the Moynihan Station Train Hall would be lower in the Open Station Option than the Amtrak Station Option, since Amtrak boarding passengers would not be present in large numbers.

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<sup>1</sup> These potential improvements are not part of the Project.

**Table 13-18**  
**Comparison of Weekday Evening Peak Passenger Accumulations**  
**Within Boarding Concourses**

		Moynihan Station Train Hall	West End Concourse North	West End Concourse Central/S	Level B Main Concourse	Exit Concourse North	Exit Concourse South	Central Concourse	LIRR Main Gate Area	NJT Seventh Avenue Concourse
<b>EXISTING (2008)</b>										
PM Peak Hour Boardings	Amtrak				2,011					
	LIRR		3,387			8,316		1,547	16,460	
	NJT				4,662		4,385			11,376
	Total		3,387		6,673	8,316	4,385	1,547	16,460	11,376
Peak Occupancy	Amtrak				523					
	LIRR		373			915		170	1,811	
	NJT				513		482			1,251
	Total		373		1,036	915	482	170	1,811	1,251
Effective Queuing Area (sf)			4,000		21,000	9,000	6,000	5,000	17,000	10,000
Queue Density (sf/p)			10.72		20.27	9.84	12.45	29.41	9.39	7.99
Level of Service (LOS)			B/C		A	C	B/C	A	C/D	C/D
<b>2015 NO BUILD</b>										
PM Peak Hour Boardings	Amtrak				3,023					
	LIRR		4,355			10,693		1,989	21,164	
	NJT				6,373		5,994			15,550
	Total		4,355		9,396	10,693	5,994	1,989	21,164	15,550
Peak Occupancy	Amtrak				786					
	LIRR		479			1,176		219	2,328	
	NJT				701		659			1,710
	Total		479		1,487	1,176	659	219	2,328	1,710
Effective Queuing Area (sf)			4,000		21,000	9,000	6,000	5,000	17,000	10,000
Queue Density (sf/p)			8.35		14.12	7.65	9.10	22.83	7.30	5.85
Level of Service (LOS)			C/D		A/B	C/D	C/D	A	D	D/E
<b>2015 BUILD – AMTRAK STATION OPTION</b>										
PM Peak Hour Boardings	Amtrak	1,056			2,011					
	LIRR	3,102	4,989			9,396		1,428	18,943	
	NJT	832		877	9,921		6,511			9,860
	Total	4,990	4,989	877	11,932	9,396	6,511	1,428	18,943	9,860
Peak Occupancy	Amtrak	275			523					
	LIRR	341	549			1,034		157	2,084	
	NJT	92		96	1,091		716			1,085
	Total	708	549	96	1,614	1,034	716	157	2,084	1,085
Effective Queuing Area (sf)		25,000	7,000	4,000	21,000	9,000	6,000	5,000	17,000	10,000
Queue Density (sf/p)		35.31	12.75	41.67	13.01	8.70	8.38	31.85	8.16	9.22
Level of Service (LOS)		A	B	A	B	C/D	C/D	A	C/D	C/D
<b>2015 BUILD – OPEN STATION OPTION</b>										
PM Peak Hour Boardings	Amtrak				2,640					
	LIRR	3,613	4,474			9,737		1,469	18,905	
	NJT	693		671	10,005		5,909			10,720
	Total	4,306	4,474	671	12,645	9,737	5,909	1,469	18,905	10,720
Peak Occupancy	Amtrak				686					
	LIRR	397	492			1,071		162	2,080	
	NJT	76		74	1,101		650			1,179
	Total	473	492	74	1,787	1,071	650	162	2,080	1,179
Effective Queuing Area (sf)		25,000	7,000	4,000	21,000	10,700	6,000	6,300	20,700	10,085
Queue Density (sf/p)		52.85	14.23	54.05	11.75	9.99	9.23	38.89	9.95	8.55
Level of Service (LOS)		A	A/B	A	B/C	C	C/D	A	C	C/D
<b>Note:</b> This analysis assumes normal operating conditions with trains running on or close to schedule; passengers wait at concourse level for track assignment information.										

In the Build condition, for the evening peak scenario that was analyzed, conditions within the Train Hall and at the southern end of the West End Concourse would remain at LOS A. At the north end of the West End Concourse, the analysis assumed that 7,000 square feet of space would be available for LIRR passenger waiting and queuing outside of the main flow corridor, which would generate LOS B conditions in this area, permitting other pedestrians to walk comfortably through the space. The configuration of the north end of the West End Concourse and associated vertical circulation elements would be determined during the final design process, taking into account structural constraints, requirements for platform ventilation systems and other utilities, and pedestrian space needs.

With Amtrak shifted to Moynihan Station, and with commuter passengers able to utilize the new concourses at the Farley Building, as well as the existing main concourse of Level B, occupancies within the existing Penn Station concourses would be reduced, and queuing levels of service would improve (e.g., from LOS D to LOS C/D in the LIRR Main Gate Area and from LOS D/E to LOS C/D in the NJT Seventh Avenue Concourse).

### **PLATFORM CLEARANCE**

The Project would increase the number of platform escalators from 30 to 44, the number of platform stairways from 52 to 61, and the number of passenger elevators from 17 to 24. The increased capacity would be focused on Platforms 3 through 8 (Tracks 5-16), with the largest increases on Platforms 3 through 6 (Tracks 5-12), which are the platforms with the least current egress capacity. **Table 13-19** compares the time required to clear the platforms of a full trainload of passengers for the 2008 existing and 2015 Build conditions. No new platform access points currently are planned by the railroads, so the 2015 No Build condition would be the same as the existing condition. On platforms 3 through 6 (Tracks 5-12), the time required to clear the platform of a full trainload of passengers would decrease from approximately 5.5 minutes to between 3.7 and 4.8 minutes. In addition, the platforms would be made safer for passengers by distributing vertical circulation elements more evenly along the lengths of the platforms.

### **CONCLUSIONS**

The Project would increase the quantity of public circulation space in the Penn Station complex, increase platform vertical circulation capacity, with particularly significant improvements at Platforms 3 through 6 (serving Tracks 5 through 12), increase total vertical circulation capacity between Levels A and B of the station, and increase the number and capacity of station street level entrances.

The new pedestrian circulation facilities within the Farley Complex, including the Train Hall, Intermodal Hall, street entrances and connecting corridors and passageways, can be designed to carry the projected 2015 pedestrian volumes at an appropriately high level of service without creating significant congestion impacts during the weekday peak periods. No locations were identified within the station complex where significant adverse impacts would be generated or existing peak conditions significantly worsened by the proposed Project. Overall, the Project would provide time savings and congestion relief benefits for all passengers using Penn Station, improve pedestrian circulation by providing a more balanced arrangement of facilities within the station complex, and create a significantly more attractive and convenient station environment for passengers using the new facilities within the Farley Complex.



**Table 13-19**  
**Comparison of Platform Clearance Times**  
**Following Arrival of Fully Loaded Train**

Platform	Tracks	Length (ft.)	No. of Cars	Railroad	Seats / Car	Passenger Load	Case	No. of Escs.	No. of Stairs	Total Vertical Circulation Elements	Total Egress Capacity (ped / min)	Platform Clearance Time		Percent Improvement Over No Build
												Minimum (min)	Expected (min)	
11	20, 21	1,007	12	LIRR	115	1,380	Ex, NB, B	1	7	8	741	1.96	2.29	N/C
10	18, 19	1,022	12	LIRR	115	1,380	Ex, NB, B	2	7	9	1201	1.21	1.83	N/C
9	17	916	10	LIRR	115	1,150	Ex, NB, B	1	8	9	713	2.03	3.66	N/C
8	15, 16	1,185	12	LIRR	115	1,380	Ex & NB	4	5	9	779	1.86	2.86	25.8%
							B	5	6	11	1037	1.40	2.12	
7	13, 14	1,483	12	LIRR	115	1,380	Ex & NB	4	5	9	699	2.07	3.03	17.5%
							B	6	5	11	940	1.54	2.50	
6	11, 12	1,464	12	NJT	135	1,620	Ex & NB	4	2	6	494	3.44	5.37	31.5%
							B	6	4	10	923	1.84	3.68	
5	9, 10	1,463	12	NJT	135	1,620	Ex & NB	4	2	6	440	3.87	5.60	21.4%
							B	6	4	10	843	2.02	4.40	
4	7, 8	1,149	12	NJT	135	1,620	Ex & NB	3	2	5	437	3.89	5.60	13.7%
							B	5	4	9	840	2.02	4.83	
3	5, 6	934	10	NJT	135	1,350	Ex & NB	2	3	5	437	2.76	5.47	30.3%
							B	4	5	9	723	1.67	3.81	
2	3, 4	842	8	NJT	135	1,080	Ex, NB, B	3	5	8	703	1.61	1.92	N/C
1	1, 2	842	8	NJT	135	1,080	Ex, NB, B	2	6	8	722	1.57	1.86	N/C
12	A, B	500	5	Amtrak	70	350	B	2	1	3	191	1.83	2.25	New

**Notes:**  
N/C: No Change.  
The Project would make no significant changes to platform access at Platforms 1, 2, 9, 10 and 11. Minimum clearance time assumes passengers are distributed among egress points in proportion to egress capacity. Expected clearance time assumes passengers are distributed according to location on platform and desired point of egress, based on historical surveys. Expected clearance times also assume that passengers choose the nearest egress point once queues dissipate.  
Ex = Existing; NB = No Build; B = Build

The projected increase in 2015 rail passenger traffic generated by the Project would be offset by the diversion of Amtrak and commuter passengers to the new Moynihan Station facilities west of Eighth Avenue and the expanded ability of commuters to make use of the Main Concourse space vacated by Amtrak, resulting in peak levels of service within the existing station that are comparable to or better than those indicated for the 2015 No Build condition.

The analyses that have been undertaken of the proposed Project confirm the conclusion reached in the 1999 EA (and later seconded in the 2006 FEIS) that there would be no significant impacts to pedestrian circulation within the station, and:

“The net result of the Project would be a transportation facility that would provide dramatically improved service to all its customers—intercity rail passengers, rail commuters, subway riders, area employers, and retail patrons.”<sup>1</sup>

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<sup>1</sup> Penn Station Redevelopment Corporation, Pennsylvania Station Redevelopment Project, Environmental Assessment, Appendix 7, “Transit and Indoor Pedestrian Circulation,” AKRF, Inc., 1999, p. A.7-25.

## **A. INTRODUCTION**

This section evaluates the traffic and parking conditions for areas potentially affected by the Project. There have been a number of changes in the study area since the 2006 FEIS including changes in the roadway network, existing traffic volumes and traffic patterns, planned development projects, as well as changes in the No Build development for the Farley Complex. There have also been updates to CEQR traffic analysis methodologies and transportation planning assumptions since the completion of the 2006 FEIS.

The purpose of this section is to assess the potential traffic and parking impacts of the Project, taking the changes that have occurred since the 2006 FEIS into account and comparing conditions with the proposed Project to those conditions described in the 2006 FEIS, which concluded that the Project contemplated at that time would not result in any unmitigated significant adverse impacts to traffic and parking conditions in the study area.

## **TRAFFIC STUDY AREA**

The traffic study area has 39 analysis intersections bounded by 35th Street to the north, 28th Street to the south, Sixth Avenue/Broadway to the east, and Tenth Avenue to the west (see **Figure 14-1**). The study area and the analysis intersections for the current Moynihan Station Development Project are the same as those analyzed in the 2006 FEIS.

## **B. CHANGES IN BACKGROUND CONDITIONS**

### **METHODOLOGY**

Traffic volumes reported in the 2006 FEIS for the 2005 Existing, 2010 No Build, and 2010 Build were compared with the corresponding estimated traffic volumes for the 2008 Existing, 2015 No Build, and 2015 Build conditions for the current Project. This included comparing traffic volumes along two screenlines and a cordon line around the study area perimeter, as well as at individual intersection approaches. Any notable volume changes are identified in this analysis and their traffic related implications are discussed.

The approach used to determine trip generation followed *CEQR Technical Manual* guidelines. The transportation planning assumptions shown in **Table 14-1** are based upon the 2009 Western Rail Yards (WRY) FEIS<sup>1</sup>. The assumptions used for that project were developed through an inter-agency working group that included the New York Department of City Planning (NYCDP), NYCDOT, Hudson Yards Development Corporation (HYDC), the Metropolitan Transportation Authority (MTA), NJT, and the Port Authority of New York and New Jersey.

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<sup>1</sup> The 2009 WRY FEIS is available at [http://www.nyc.gov/html/dcp/html/env\\_review/western\\_rail\\_yard.shtml](http://www.nyc.gov/html/dcp/html/env_review/western_rail_yard.shtml)

The working group also included participation from several consultant firms representing various proposed development projects in West Midtown Manhattan, including the Expanded Moynihan Station Project, a previous variation of the Project that was studied in 2007-2008 and is not currently being pursued. The 2009 WRY FEIS was utilized as the basis of the transportation and traffic planning assumptions of this Technical Memorandum. The WRY traffic study area encompasses the entire traffic network of the Project, and it was developed in 2008-2009, making it a practical and suitable source for the analysis in this Technical Memorandum.

### TRIP GENERATION ESTIMATES

Trip rates developed for specific land uses are based upon the above-referenced transportation planning assumptions. The net daily person trip rate per 1,000 gross square feet (gsf) of development floor area is used for each land use category, which takes into account linked trips with more than one purpose. The resulting trips by mode and analysis hour are summarized in **Table 14-2** (2015 No Build–Farley Complex); **Table 14-3** (2015 Proposed Project–Farley Complex); and **Table 14-4** (2015 Proposed Project–Development Transfer Site).

A comprehensive screening analysis was used to identify intersections where potential adverse traffic impacts could occur. Three separate, pre-defined conditions were used to screen the 39 intersections within the traffic study area using two sets of threshold criteria for the No Build and incremental Build conditions, respectively. This approach recognized that travel patterns in the study area have changed since the 2006 FEIS; some intersections previously affected by the Project analyzed for the 2010 Build year in the 2006 FEIS may no longer be so affected, while other intersections may experience impacts from the current plan in the 2015 Build year that did not previously occur.

An HCS capacity and level of service analysis was then performed for the intersections identified through this screening analysis. Standard traffic impact criteria from the *CEQR Technical Manual* were used to compare the 2015 future No Build and 2015 Build conditions to determine whether there would be a significant adverse traffic impact on intersection approaches being analyzed.

Where adverse impacts were found among the 12 intersections identified to have traffic impacts in the 2006 FEIS, the previous mitigation measures were first tested to see whether they would be adequate to mitigate the current impacts. If not, additional standard, low-cost, easily implementable mitigation was developed. Where other intersections were found to experience adverse traffic impacts from the current plan in the 2015 Build year that were not previously identified, a similar approach was used to develop standard mitigation measures. The traffic analysis concluded with a summary of the current findings for the 2015 Build year as compared with the traffic related findings for the 2010 Build year reported in the 2006 FEIS.

## Section 14: Traffic and Parking

**Table 14-1**  
**Transportation Planning Assumptions**

Land Use	Station Retail		Local Retail		Hotel		Destination Retail		Commercial Office Area B		Residential Area C	
Trip Generation	(6,31,38)		(6,25,27,31)		(3, 26)		(25,21)		(3,6,25,27)		(2,3,6)	
Per 1000 GSF/rooms/DU	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
Daily Person Trips	205	240	205	240	9.42	9.42	159	185	18	3.875	8.075	9.575
Net Daily Person Trips	26	30	154	180	7.42	7.42	119	139				
Temporal Distribution	(39)		(25,26)		(5,27, 28)		(25)		(25,27,28,30)		(25,27)	
AM (8-9)	3.1%		3.1%		7.5%		0.0%		11.8%		9.1%	
MD (12-1)	19.0%		19.0%		14.4%		9.5%		15.0%		4.7%	
PM 5-6)	9.6%		9.6%		12.8%		9.8%		13.7%		10.7%	
SAT (1-2 PM)	9.5%		9.5%		7.5%		9.9%		15.0%		7.0%	
In / Out Directional Split	(27)		(25,27,32)		(18,25,26,27)		(32)		(25,27,30)		(25,27)	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM (8-9)	50%	50%	50%	50%	39%	61%	0%	0%	96%	4%	15%	85%
MD (12-1)	50%	50%	50%	50%	54%	46%	55%	45%	48%	52%	50%	50%
PM 5-6)	50%	50%	50%	50%	65%	35%	47%	53%	5%	95%	70%	30%
SAT (1-2 PM)	50%	50%	50%	50%	56%	44%	52%	48%	57%	43%	50%	50%
Modal Split (4)	(27)		(25,27)		(27)		(25,27)		(44)		(27)	
Mode	All Periods		All Periods		AM/PM/Sat MD		MD		AM/PM		MD/Sat MD	
Auto	2.0%		2.0%		9.0%		8.0%		13.8%		2.0%	
Taxi	3.0%		3.0%		18.0%		15.0%		1.2%		3.0%	
Bus	6.0%		6.0%		3.0%		3.0%		12.7%		6.0%	
Subway	6.0%		6.0%		24.0%		13.0%		52.6%		59.1%	
Railroad	0.0%		0.0%		0.0%		0.0%		15.5%		0.0%	
Walk	83.0%		83.0%		46.0%		61.0%		3.3%		83.0%	
Other	0.0%		0.0%		0.0%		0.0%		0.0%		0.0%	
Work at Home	0.0%		0.0%		0.0%		0.0%		0.9%		0.0%	
	100.0%		100.0%		100.0%		100.0%		100.0%		100.0%	
Vehicle Occupancy	(27)		(25,27)		(25)		(25,27)		(25)		(27)	
Auto	1.65		1.65		1.40		2.00		1.65		1.65	
Taxi	1.40		1.40		1.80		2.00		1.40		1.40	
Truck Trip Generation	(5,19)		(5,19,25,27)		(5,19,25,27)		(5,19,25,27)		(20,26)		(25,27,46)	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
Daily Vehicle Trips	0.35	0.02	0.35	0.02	0.06	0.01	0.35	0.02	0.16	0.01	0.03	0.01
Temporal Distribution	(5,19,25,26,27)		(5,19,25,27)		(5,19,25,27)		(5,19,25,26,27)		(20,26)		(19,25,27)	
AM (8-9)	7.7%		7.7%		12.2%		7.7%		7.0%		12.2%	
MD (12-1)	11.0%		11.0%		8.7%		11.0%		7.0%		8.7%	
PM 5-6)	1.0%		1.0%		1.0%		1.0%		3.0%		2.0%	
SAT (1-2 PM)	11.0%		11.0%		9.0%		11.0%		11.0%		9.0%	
In / Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%

## Moynihan Station Development Project Technical Memorandum

**Table 14-1 (cont'd)**  
**Transportation Planning Assumptions**

<b>Sources:</b>
(2) Source: Pushkarev & Zupan, Urban Space for Pedestrians.
(3) Saturday daily trip rate based on ratio of weekday to Saturday trip generation rates from ITE Trip Generation, 7th Edition for the appropriate land use category, as follows: 222 (High Rise Apartment); 710 (General Office Building). Hotel trip rate same as weekday per NYCDOT 03-14-08
(5) Based on Saturday data from Coliseum Redevelopment FSEIS, July 1997. Weekday pre-game truck temporal distribution for Transit Retail based upon Willets Point EIS.
(6) Source: City Environmental Quality Review (CEQR) Technical Manual, 2001 -- Appendix 3 and Hudson Yards FGEIS.
(18) Weekday 10-11 PM directional distribution assumed based on pattern for residential uses.
(19) Source: Curbside Pickup & Delivery Operations & Arterial Traffic Impacts, FHWA, February 1981. Saturday truck distribution assumed to equal weekday.
(20) Weekday and Saturday office truck trip rate and temporal distribution based on PHA June 10, 2004 survey at existing office buildings in Midtown and Lower Manhattan. Weekday pre-game and post-game hours from Willets Point EIS per NYCDOT 03-14-08
(21) Saturday trip rate based upon the weekday trip rate factored by the ratio between Saturday percent of average day to the average Tuesday, Wednesday, Thursday percentage of average day from ITE Trip Generation Handbook, 7th Edition, Shopping Center 820, Table 3, Column 3, more than 300,000 SF GLA.
(25) Source: No. 7 Subway Extension - Hudson Yards Rezoning and Development Program FGEIS, Nov. 2004.
(26) Source: Atlantic Yards Arena & Redevelopment Project FEIS, November 2006
(27) Farley/Moynihan West FEIS, August 2006, Table 13-1, based upon 2000 Census Journey-to-Work Data where applicable.
(28) Saturday 4-5 PM temporal distribution based upon ratio between Saturday peak hour of generator trip rate to Saturday daily trip rate with directional distribution based upon Saturday peak hour of generator. Source: ITE Trip Generation, 7th Edition, Land Use 310: Hotel.
(30) Saturday 1-2 PM temporal distribution based upon ratio between Saturday peak hour of generator trip rate to Saturday daily trip rate with directional distribution based upon Saturday peak hour of generator. Source: ITE Trip Generation, 7th Edition, Land Use 710: General Office Building.
(31) Local and Transit Retail Saturday trip generation based upon factoring weekday trip rate by ratio between Weekday and Saturday daily rates for locally orientated ITE 7th Edition, Land Use 851: Convenience Retail.
(32) Saturday temporal and directional distributions for Local Retail and Destination Retail based on Saturday hourly variation for ITE Trip Generation, 7th Edition, Land Use 820: Shopping Center, Table 1 and Table 2, respectively.
(38) Linked trips for Local Retail and Destination Retail are 25% of generated trips, as per CEQR Technical Manual, 30-23. Linked trips for Transit Retail are 87.5% of generated trips, as per Farley-Moynihan FEIS, August 2006
(39) Temporal distribution for Transit Retail based upon temporal distribution for Local Retail, and represents the distribution for the 12.5% of trips that are not linked trips..
(44) Source: Moynihan Unified Network Working Group based upon 2000 Census Reverse Journey-to-Work data for either Daily or AM peak period for selected single or groups of census tracts for each area.
(46) The Saturday delivery truck trip generation rate assumes 20% of weekday rate.
<b>Notes:</b>
While the majority of the transit retail uses would serve railroad patrons, travel by railroad is not considered a mode of transportation to these uses. Instead, stops made at these retail uses by railroad patrons are considered linked trips and part of the entire travel via railroad between different origins and destinations.

Section 14: Traffic and Parking

**Table 14-2**  
**Farley Complex Trip Generation - Commercial Office and Commercial Retail**  
**2015 Future without the Proposed Project**

Analysis Period and Use	Auto		Taxi		Subway		Bus		Railroad		Walk		Other		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Person Trips by Mode																	
AM Peak Hour																	
Commercial Office	155	6	13	1	591	25	143	6	174	7	37	2	0	0	1,113	46	1,160
Commercial Retail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	155	6	13	1	591	25	143	6	174	7	37	2	0	0	1,113	46	1,160
Midday Peak Hour																	
Commercial Office	14	15	21	23	43	46	43	46	0	0	593	642	0	0	714	774	1,488
Commercial Retail	288	239	128	106	640	532	256	213	0	0	1,887	1,569	0	0	3,198	2,659	5,857
Total	302	255	149	130	682	578	299	259	0	0	2,479	2,211	0	0	3,912	3,433	7,345
PM Peak Hour																	
Commercial Office	9	178	1	15	36	679	9	164	11	200	2	43	0	0	67	1,279	1,347
Commercial Retail	254	290	113	129	746	854	225	258	56	64	1,423	1,629	0	0	2,817	3,225	6,042
Total	263	468	114	144	782	1,533	234	422	67	264	1,425	1,672	0	0	2,885	4,504	7,389
Saturday Midday Peak Hour																	
Commercial Office	4	3	5	4	11	8	11	8	0	0	152	114	0	0	183	138	320
Commercial Retail	334	308	148	137	741	684	297	274	0	0	2,187	2,019	0	0	3,707	3,422	7,130
Total	337	311	154	141	752	693	308	282	0	0	2,339	2,133	0	0	3,890	3,560	7,450
Analysis Period and Use	Auto		Taxi		Truck / Delivery										Total		Total
	In	Out	In	Out	In	Out								In	Out		
Vehicle Trips by Type																	
AM Peak Hour																	
Commercial Office	94	4	10	0	3	3									107	7	114
Commercial Retail	0	0	0	0	7	7									7	7	14
Total	94	4	10	0	10	10									114	14	128
Midday Peak Hour																	
Commercial Office	9	9	15	17	3	3									27	29	56
Commercial Retail	144	120	64	53	10	10									218	183	401
Total	153	129	79	70	13	13									245	212	457
PM Peak Hour																	
Commercial Office	6	108	1	11	1	11									8	120	128
Commercial Retail	127	145	56	64	1	1									184	211	395
Total	132	253	57	76	2	2									192	331	522
Saturday Midday Peak Hour																	
Commercial Office	2	2	4	3	0	0									6	5	11
Commercial Retail	167	154	74	68	1	1									242	223	465
Total	169	156	78	71	1	1									248	228	476

**Table 14-3**  
**Farley Complex Trip Generation**  
**2015 Future with the Proposed Project**

Analysis Period and Use	Auto		Taxi		Subway		Bus		Railroad		Walk		Other		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
<b>Person Trips by Mode</b>																	
<b>AM Peak Hour</b>																	
Train Station	2	9	13	65	45	33	22	13	0	0	24	10	0	0	106	130	236
Station Retail	1	1	1	1	2	2	2	2	0	0	29	29	0	0	35	35	69
Hotel	2	4	5	8	7	10	1	1	0	0	12	20	0	0	27	42	70
Commercial Retail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Banquet Facilities	1	1	1	2	2	3	0	0	0	0	3	5	0	0	8	12	19
Hotel Core / Lobby	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	2	3
<b>Total</b>	<b>6</b>	<b>15</b>	<b>20</b>	<b>76</b>	<b>56</b>	<b>49</b>	<b>25</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>69</b>	<b>65</b>	<b>0</b>	<b>0</b>	<b>176</b>	<b>221</b>	<b>397</b>
<b>Midday Peak Hour</b>																	
Train Station	2	2	14	18	11	9	11	4	0	0	4	2	0	0	42	35	77
Station Retail	4	4	6	6	13	13	13	13	0	0	176	176	0	0	212	212	425
Hotel	6	5	11	9	9	8	2	2	0	0	44	37	0	0	72	61	134
Commercial Retail	288	239	128	106	640	532	256	213	0	0	1,887	1,569	0	0	3,198	2,659	5,857
Banquet Facilities	2	1	3	3	3	2	1	1	0	0	12	10	0	0	20	17	37
Hotel Core / Lobby	0	0	0	0	0	0	0	0	0	0	2	2	0	0	3	2	5
<b>Total</b>	<b>302</b>	<b>252</b>	<b>163</b>	<b>143</b>	<b>675.69</b>	<b>564.14</b>	<b>282</b>	<b>232</b>	<b>0</b>	<b>0</b>	<b>2,125</b>	<b>1,797</b>	<b>0</b>	<b>0</b>	<b>3,547</b>	<b>2,988</b>	<b>6,535</b>
<b>PM Peak Hour</b>																	
Train Station	10	2	56	16	42	44	42	16	0	0	18	22	0	0	168	100	268
Station Retail	2	2	3	3	6	6	6	6	0	0	89	89	0	0	107	107	215
Hotel	7	4	14	7	19	10	2	1	0	0	36	19	0	0	77	42	119
Commercial Retail	254	290	113	129	746	854	225	258	56	64	1,423	1,629	0	0	2,817	3,225	6,042
Banquet Facilities	2	1	4	2	5	3	1	0	0	0	10	5	0	0	22	12	33
Hotel Core / Lobby	0	0	1	0	1	0	0	0	0	0	1	1	0	0	3	2	5
<b>Total</b>	<b>275</b>	<b>299</b>	<b>190</b>	<b>158</b>	<b>819</b>	<b>918</b>	<b>277</b>	<b>282</b>	<b>56</b>	<b>64</b>	<b>1,577</b>	<b>1,765</b>	<b>0</b>	<b>0</b>	<b>3,195</b>	<b>3,487</b>	<b>6,681</b>
<b>Saturday Midday Peak Hour</b>																	
Train Station	2	2	14	18	11	9	11	4	0	0	4	2	0	0	42	35	77
Station Retail	2	2	4	4	7	7	7	7	0	0	102	102	0	0	123	123	245
Hotel	4	3	7	6	9	7	1	1	0	0	18	14	0	0	39	31	70
Commercial Retail	334	308	148	137	741	684	297	274	0	0	2,187	2,019	0	0	3,707	3,422	7,130
Banquet Facilities	1	1	2	2	3	2	0	0	0	0	5	4	0	0	11	9	19
Hotel Core / Lobby	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	1	3
<b>Total</b>	<b>343</b>	<b>316</b>	<b>175</b>	<b>166</b>	<b>772</b>	<b>710.49</b>	<b>316</b>	<b>286</b>	<b>0</b>	<b>0</b>	<b>2,317</b>	<b>2,141</b>	<b>0</b>	<b>0</b>	<b>3,923</b>	<b>3,620</b>	<b>7,544</b>

**Table 14-3**  
**Farley Complex Trip Generation (cont'd)**  
**2015 Future with the Proposed Project**

Analysis Period and Use	Auto		Taxi		Truck / Delivery												Total		
	In	Out	In	Out	In	Out									In	Out	Total		
Vehicle Trips by Type																			
AM Peak Hour																			
Train Station	1	6	47	47	0	0									48	53	101		
Station Retail	0	0	1	1	1	1									2	2	5		
Hotel	2	3	3	4	0	0									5	7	12		
Commercial Retail	0	0	0	0	7	7									7	7	14		
Banquet Facilities	0	1	1	1	0	0									1	2	3		
Hotel Core / Lobby	0	0	0	0	0	0									0	0	0		
Total	4	10	51	53	9	9									64	72	136		
Midday Peak Hour																			
Train Station	1	1	16	16	0	0									17	17	34		
Station Retail	3	3	5	5	2	2									9	9	18		
Hotel	4	4	6	5	0	0									10	9	19		
Commercial Retail	144	120	64	53	10	10									218	183	401		
Banquet Facilities	1	1	2	1	0	0									3	3	5		
Hotel Core / Lobby	0	0	0	0	0	0									0	0	1		
Total	153	128	92	81	12	12									257	220	478		
PM Peak Hour																			
Train Station	7	1	37	37	0	0									44	38	82		
Station Retail	1	1	2	2	0	0									4	4	8		
Hotel	5	3	8	4	0	0									13	7	20		
Commercial Retail	127	145	56	64	1	1									184	211	395		
Banquet Facilities	1	1	2	1	0	0									4	2	5		
Hotel Core / Lobby	0	0	0	0	0	0									1	0	1		
Total	142	151	106	109	1	1									249	261	510		
Saturday Midday Peak Hour																			
Train Station	1	1	16	16.00	0	0									17	17	34		
Station Retail	1	1	3	3	0	0									4	4	8		
Hotel	3	2	4	3	0	0									6	5	12		
Commercial Retail	167	154	74	68	1	1									242	223	465		
Banquet Facilities	1	1	1	1	0	0									2	1	3		
Hotel Core / Lobby	01	0	0	0	0	0									0	0	0		
Total	173	159	98	91	1	1									271	251	522		



**Table 14-4**  
**Development Transfer Site (Mixed-Use Development Option) Trip Generation**  
**2015 Future with the Proposed Project**

Analysis Period and Use	Auto		Taxi		Subway		Bus		Railroad		Walk		Other		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
<b>Person Trips by Mode</b>																	
<b>AM Peak Hour</b>																	
Hotel	6	9	12	19	16	25	2	3	0	0	31	48	0	0	67	105	173
Residential	0	0	8	47	41	233	0	0	0	0	20	114	0	0	69	394	463
Local Retail	6	6	9	9	17	17	17	17	0	0	238	238	0	0	286	286	573
<b>Total</b>	<b>12</b>	<b>15</b>	<b>29</b>	<b>74</b>	<b>74</b>	<b>275</b>	<b>19</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>289</b>	<b>401</b>	<b>0</b>	<b>0</b>	<b>423</b>	<b>785</b>	<b>1,208</b>
<b>Midday Peak Hour</b>																	
Hotel	14	12	27	23	23	20	5	5	0	0	109	93	0	0	179	152	331
Residential	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Retail	35	35	53	53	105	105	105	105	0	0	1,457	1,457	0	0	1,756	1,756	3,511
<b>Total</b>	<b>49</b>	<b>47</b>	<b>80</b>	<b>76</b>	<b>129</b>	<b>125</b>	<b>111</b>	<b>110</b>	<b>0</b>	<b>0</b>	<b>1,566</b>	<b>1,550</b>	<b>0</b>	<b>0</b>	<b>1,934</b>	<b>1,908</b>	<b>3,842</b>
<b>PM Peak Hour</b>																	
Hotel	17	9	34	19	46	25	6	3	0	0	88	47	0	0	191	103	294
Residential	0	0	45	19	225	97	0	0	0	0	111	48	0	0	381	163	544
Local Retail	18	18	27	27	53	53	53	53	0	0	736	736	0	0	887	887	1,774
<b>Total</b>	<b>35</b>	<b>27</b>	<b>106</b>	<b>64</b>	<b>324</b>	<b>174</b>	<b>59</b>	<b>56</b>	<b>0</b>	<b>0</b>	<b>935</b>	<b>831</b>	<b>0</b>	<b>0</b>	<b>1,459</b>	<b>1,153</b>	<b>2,613</b>
<b>Saturday Midday Peak Hour</b>																	
Hotel	9	7	17	14	23	18	3	2	0	0	44	35	0	0	97	76	173
Residential	0	0	25	25	125	125	0	0	0	0	61	61	0	0	211	211	422
Local Retail	21	21	30	31	62	62	62	62	0	0	852	852	0	0	1,026	1,026	2,052
<b>Total</b>	<b>29</b>	<b>27</b>	<b>73</b>	<b>69</b>	<b>210</b>	<b>205</b>	<b>64</b>	<b>63</b>	<b>0</b>	<b>0</b>	<b>957</b>	<b>948</b>	<b>0</b>	<b>0</b>	<b>1,334</b>	<b>1,313</b>	<b>2,647</b>

**Table 14-4 (cont'd)**  
**Development Transfer Site (Mixed-Use Development Option) Trip Generation**  
**2015 Future with the Proposed Project**

Analysis Period and Use	Auto		Taxi		Truck / Delivery										Total		
	In	Out	In	Out	In	Out									In	Out	Total
<b>Vehicle Trips by Type</b>																	
<b>AM Peak Hour</b>																	
Hotel	4	7	14	14	1	1									19	22	41
Residential	0	0	36	36	1	1									37	37	75
Local Retail	3	3	9	9	2	2									14	14	29
<b>Total</b>	<b>8</b>	<b>10</b>	<b>59</b>	<b>59</b>	<b>4</b>	<b>4</b>									<b>71</b>	<b>73</b>	<b>144</b>
<b>Midday Peak Hour</b>																	
Hotel	10	9	20	20	1	1									31	30	61
Residential	0	0	0	0	1	1									1	1	2
Local Retail	21	21	56	56	2	2									80	80	160
<b>Total</b>	<b>32</b>	<b>30</b>	<b>77</b>	<b>77</b>	<b>4</b>	<b>4</b>									<b>112</b>	<b>111</b>	<b>223</b>
<b>PM Peak Hour</b>																	
Hotel	12	7	20	20	0	0									32	27	59
Residential	0	0	32	32	0	0									32	32	65
Local Retail	11	11	29	29	0	0									39	39	79
<b>Total</b>	<b>23</b>	<b>17</b>	<b>81</b>	<b>81</b>	<b>0</b>	<b>0</b>									<b>104</b>	<b>98</b>	<b>203</b>
<b>Saturday Midday Peak Hour</b>																	
Hotel	6	5	12	12	0	0									19	17	36
Residential	0	0	27	27	0	0									27	27	54
Local Retail	12	12	33	33	0	0									46	46	91
<b>Total</b>	<b>19</b>	<b>17</b>	<b>72</b>	<b>72</b>	<b>0</b>	<b>0</b>									<b>91</b>	<b>90</b>	<b>181</b>

## **EXISTING CONDITIONS**

### *CHANGES TO THE ROADWAY NETWORK*

The following summarizes the changes to the roadway network in the study area that have occurred since completion of the 2006 FEIS:

- *34th Street Reconfiguration and Bus Priority Treatment*—West 34th Street between Fifth Avenue and Ninth Avenue has been reconfigured from two through traffic lanes in each direction to one through lane in the eastbound direction and two through lanes in the westbound direction. The curb lane in each direction along 34th Street is designated as a bus only lane throughout the Project study area. Bus lanes are in operation on weekdays with hours of operation varying by roadway segment. West of Eighth Avenue, the bus lanes operate during the AM and PM peak periods from 7-10 AM and 4-7 PM. East of Eighth Avenue, the bus lanes operate during a 12 hour period, between 7 AM and 7 PM. Bus lanes can be used by other vehicles only to make a right turn.
- *Bicycle Lanes*—A bicycle lane has been striped along Eighth Avenue for the entire portion of the study area, and along Ninth Avenue, a portion of which extends into the study area between the southern limit at West 28th Street and West 31st Street. A bicycle lane has also been constructed on Broadway as part of the Broadway Mall, described below.
- *Broadway Mall*—Broadway between West 33rd Street and West 26th Street has been reconfigured to provide a parking/loading lane along the west curb, one travel lane, and a parking or turn lane in the roadway median with a bicycle lane along the east curb. The southbound vehicular capacity has been reduced from two or three lanes to one lane.
- *Parking Regulations*—Changes were made to parking regulations throughout the study area in order to improve traffic circulation and partially offset the effects of the Bus Priority Lanes along 34th Street and other roadway changes.

The most important change affecting traffic circulation in the study area has been the reconfiguration of West 34th Street, including the implementation of the 34th Street Bus Priority Lanes, which increased person movement capacity along the corridor but reduced vehicular capacity. As a consequence, existing vehicular volumes along 34th Street have generally declined with some vehicles diverting to other east-west streets both within and outside the study area. The Broadway Mall has reduced vehicular capacity on Broadway resulting in a shift of traffic to Seventh Avenue in the study area, and to Fifth Avenue outside the study area.

### *CHANGES IN EXISTING TRAFFIC VOLUMES*

Existing volumes in the study area were compared for 2005 and 2008 to determine traffic trends. The 2005 volumes are based on the 2006 FEIS and the 2008 volumes were obtained from the 2009 WRY FEIS. The 2008 traffic counts were collected in November of that year following the implementation of the 34th Street Bus Priority/Transitway project.

To compare prior and current traffic volumes, both screenline and cordon line comparisons were taken. A screenline analysis compares 2006 FEIS and 2008 traffic as it crosses a specific line, set on a north-south and east-west axis.

A cordon line analysis compares the total traffic volume entering and leaving the project area, a “cordoned off” boundary line.

### Screenline Analysis

Traffic volumes were evaluated along two screenlines within the study area: 1) an east-west screenline, located south of 34th Street between Sixth and Tenth Avenues, which captured north-south traffic movements; and 2) a north-south screenline, located west of Seventh Avenue between 28th and 35th Streets, which captured east-west traffic movements. See **Figure 14-2. Table 14-5** shows the total screenline volumes in 2005 and 2008 for the respective existing conditions, as well as the change in volumes during the AM, Midday, PM, and Saturday Midday analysis hours.

As shown in **Table 14-5**, there has been a reduction in traffic in the study area since 2005. This is consistent with other traffic studies done recently in Manhattan. There have also been travel pattern changes due to reduced capacity along 34th Street, Ninth Avenue, and Broadway due to changes in the roadway network. The greatest traffic volume change occurs during the AM peak hour with a reduction of 1,050 vehicles across the north-south screen line and 1,210 vehicles across the east-west screen line.

**Table 14-5**  
**Screen Line Traffic Volumes**  
**2005 and 2008 Existing Conditions**

Peak Hour	North-South Screen Line West of 7th Avenue			East-West Screen Line South of 34th Street		
	2005	2008	Change	2005	2008	Change
AM	4,490	3,440	-1,050	9,605	8,395	-1,210
Midday	3,930	3,395	-535	8,920	8,170	-750
PM	3,760	3,550	-210	9,120	8,195	-925
Sat Midday	4,025	3,385	-640	8,735	7,935	-800

### Cordon Line Analysis

A cordon line analysis was performed around the perimeter of the study area, as illustrated in **Figure 14-2. Table 14-6** shows a comparison of the existing condition cordon volumes for AM, MD, PM, and Saturday MD analysis hours, based on the 2006 FEIS (2005 volumes) and the previously proposed Expanded Moynihan Station Project (2008 volumes) based on the 2009 WRY FEIS.

**Table 14-6**  
**Cordon Line Traffic Volumes**  
**2005 and 2008 Existing Conditions**

Existing Cordon Volumes	AM Peak		MD Peak		PM Peak		SAT MD Peak	
	In	Out	In	Out	In	Out	In	Out
2005 Conditions	13,300	12,595	13,040	11,465	13,550	11,200	12,475	11,135
2008 Conditions	11,610	11,025	11,315	10,270	11,765	10,505	11,020	10,010
Difference	-1,690	-1,570	-1,725	-1,195	-1,785	-695	-1,455	-1,125

Similar to the screenline volumes, the 2008 existing condition cordon volumes entering and leaving the study area are lower than the corresponding 2005 existing cordon line volumes from the 2006 FEIS.

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### NO BUILD CONDITIONS

#### CHANGES IN FUTURE NO BUILD LAND USE

A number of changes have occurred in the future land use assumptions since the 2006 FEIS that would affect the trips generated by proposed new development projects in the future without the Project. The 2015 No Build land use assumptions for the Project are based on information from the 2009 WRY FEIS for that project's 2017 Build year that has been updated for this Technical Memorandum to include recent projects that are expected to be developed by the Project's 2015 Build year, as well as to exclude other projects that have been deferred to a later build year.

**Table 14-7** shows the changes in land use assumptions between the 2010 Build year, analyzed in the 2006 FEIS, and the 2015 Build year, analyzed in this Technical Memorandum for the Project as currently proposed. **Table 14-8** shows a list of development projects included in the 2017 WRY No Build that are not expected to be completed by 2015.

**Table 14-7**  
**2006 FEIS 2010 Build Year and 2015 WRY Build Year**  
**No Build Development**

	No Build Year	Office Floor Area (sf)	Hotel Floor Area (sf)	Retail Floor Area (sf)	Residential Units	Community Facility (sf)
A. 2006 FEIS 2010 No Build Projects*	2010	6,572,686	—	851,492	9,084	330,259
B. 2006 FEIS Built Projects Included in 2008 Existing Conditions Traffic	2010	-2,745,376	—	-182,801	-2,879	-46,000
C. Changes to Farley No Build Since 2006 FEIS	2015	2,786,230	451,025	-27,381	-998	-85,533
D. New 2015 Projects (Not in 2006 FEIS)	2015	3,368,264	1,699,235	528,726	7,476	7,460
Total 2015 No Build (WRY Listing)		9,981,774	2,150,260	1,170,036	12,683	206,186
* Includes both 2010 No Build projects in the study area and the No Build program for the Farley Complex.						

**Table 14-8**  
**Deferred Projects in 2015 No Build**

WRY No Build Projects Not Expected by 2015	Revised Schedule	Office Floor Area (sf)	Hotel Floor Area (sf)	Retail Floor Area (sf)	Residential Units	Community Facility (sf)
Hudson Yards Sites 32/33 Ninth Avenue Westside between W 31 and W 33 St Brookfield	Post 2015	4,615,700				
Hudson Yards Site 24, Hudson Mews I (North) Dyer Ave between W 37 St and W 38 St over LT Expwy. Dermott Co.	Post 2015			82,300	448	7,460
Hudson Yards Site 28, Hudson Mews II (South) Dyer Ave between W 36 St and W 37 St over LT Expwy. Dermott Co.	Post 2015			16,100	361	
Total Deferred Projects		4,615,700		98,400	809	7,460

The total 2017 No Build incremental trip layers used in the 2009 WRY FEIS for each analysis hour were adjusted for the 2015 No Build conditions for the Project by adding-in or subtracting-out the project-specific incremental trip layers, depending on whether the specific project is being added to or subtracted from the WRY Project's 2017 No Build project listing, respectively.

**Table 14-9** shows a comparison of the 2010 and 2015 No Build development by land use type and the net differences in land use between the Project as assessed in the 2006 FEIS and the Project as currently proposed.

**Table 14-9**  
**Comparison of 2010 and 2015 No Build Development**  
**2006 FEIS vs. Currently Proposed Project**

	No Build Year	Office Floor Area (sf)	Hotel Floor Area (sf)	Retail Floor Area (sf)	Residential Units	Community Facility (sf)
2006 FEIS	2010	6,572,686	1,600,000	851,492	9,084	330,259
No Build (WRY Listing)	2015	9,981,774	2,150,260	1,170,036	12,683	206,186
Deferred Projects	Post 2015	-4,615,700		-98,400	-809	-7,460
2015 No Build	2015	5,366,074	2,150,260	1,071,636	11,874	198,726
2015 No Build – 2006 FEIS No Build (2010)	Difference	-1,206,612	550,260	220,144	2,790	-131,533

The 2015 No Build condition has less office development (minus 1,206,612 sf) but more residential units (plus 2,790) and hotel development (plus 550,260 sf) than the 2010 No Build condition analyzed in the 2006 FEIS. In addition, as currently estimated, the No Build condition for the Project site (the Farley Complex itself) has more retail space (plus 318,520 sf) and less community facility space (minus 131,533 sf) than the No Build condition for the Project site that was assessed in the 2006 FEIS.

The large reduction in office space combined with a greater emphasis on residential development in the 2015 No Build condition is expected to result in fewer vehicular trips in the study area for the 2015 No Build condition as compared to the 2010 No Build condition analyzed in the 2006 FEIS.

#### *CHANGES IN NO BUILD TRAFFIC VOLUMES*

##### *Screenline Analysis*

The 2015 No Build traffic volumes (i.e., projected 2015 traffic volumes in the No Build condition), which are based on the 2009 WRY FEIS and adjusted for the Project site's 2015 No Build condition, are lower than the 2010 No Build traffic volumes analyzed in the 2006 FEIS. **Table 14-10** shows a comparison of the total No Build screenline traffic volumes during the AM, Midday, PM, and Saturday Midday peak hours. The reduction in the 2015 No Build volumes is attributable to lower existing traffic volumes as well as a change in the projected land use mix of proposed development projects within the study area.

**Table 14-10**  
**Comparison of 2010 and 2015 No Build**  
**Screenline Traffic Volumes**

Peak Hour	North-South Screen Line (West of 7th Avenue)			East-West Screen Line (South of 34th Street)		
	2010	2015	Change	2010	2015	Change
AM	5,544	4,063	-1,481	11,651	9,478	-2,173
Midday	4,741	3,984	-757	10,609	9,191	-1,418
PM	4,897	4,296	-601	11,413	9,392	-2,021
Saturday Midday	4,710	3,933	-777	10,023	8,857	-1,166

*Cordon Line Analysis*

**Table 14-11** shows a comparison of the 2010 and 2015 cordon volumes into and out of the study area during the AM, Midday, PM, and Saturday Midday peak hours. The current 2015 No Build cordon volumes are lower than the 2010 No Build cordon volumes analyzed in the 2006 FEIS.

**Table 14-11**  
**Comparison of 2010 and 2015 No Build**  
**Cordon Volumes**

No Build Condition	AM Peak		MD Peak		PM Peak		SAT MD Peak	
	In	Out	In	Out	In	Out	In	Out
2006 FEIS 2010	15,727	14,648	14,990	13,397	15,675	14,001	13,834	12,843
2015	13,397	12,556	13,096	11,967	13,760	12,557	12,907	11,787
Difference	(2,330)	(2,092)	(1,894)	(1,430)	(1,915)	(1,444)	(927)	(1,056)

The current Project's total 2015 No Build cordon volume in the AM peak hour is about 15 percent lower into the study area and 14 percent lower out of the study area than the No Build conditions analyzed in the 2006 FEIS. Similarly, the PM peak hour cordon volumes are about 12 percent lower inbound and 10 percent lower outbound. The Midday cordon volumes are about 13 percent lower inbound and 11 percent lower outbound. The No Build Saturday Midday peak cordon volumes are also lower, but by a smaller amount, about 7 percent lower inbound and 8 percent lower outbound.

The current Project's reduced No Build cordon traffic volumes are largely attributable to lower existing (2008) baseline traffic volumes relative to the 2005 existing traffic volumes used for the 2006 FEIS. Baseline traffic volume reductions account for 70 to 90 percent of the AM, Midday, and PM No Build cordon volume reductions in the 2015 Build year. The remaining traffic reductions are due to changes in the mix of development projects without the Project—less office space and greater emphasis on residential uses that generate fewer auto trips than office development.

**BUILD CONDITIONS**

*CHANGES IN INCREMENTAL BUILD TRAFFIC VOLUMES*

*Cordon Line Analysis*

**Table 14-12** shows a comparison of the 2010 and 2015 incremental Build cordon volumes (i.e., projected traffic volumes generated by the Project) into and out of the study area during the AM, Midday, PM, and Saturday Midday peak hours. The current Project's 2015 incremental Build cordon volumes are lower than the 2010 Build cordon volumes analyzed in the 2006 FEIS.

**Table 14-12**  
**Comparison of 2010 and 2015 Incremental Build**  
**Cordon Line Volumes**

Build Cordon Volumes	AM Peak		MD Peak		PM Peak		SAT MD Peak	
	In	Out	In	Out	In	Out	In	Out
2006 FEIS 2010	322	472	662	640	572	417	859	864
2015	261	242	441	439	446	467	487	483
Difference	(61)	(230)	(221)	(201)	(126)	50	(372)	(381)

## INTERSECTION SCREENING ANALYSIS

### Methodology

Because travel patterns in the study area have changed since the 2006 FEIS, some intersections previously affected by the Project analyzed for the 2010 Build year in the 2006 FEIS may no longer be so affected, while other intersections may experience new Project impacts in the 2015 Build year, notwithstanding the lower overall traffic volumes described above. Similar to the methodology employed for the 2006 FEIS, all of the Project's vehicular traffic was assigned to and from the project site, accounting for any modifications to the street network that would have affected their likely routes. Trucks were specifically assigned along designated truck routes, taxis were assigned to and from the proposed taxi stands and project block faces, and autos were assigned to local parking facilities.

A screening process was developed, as described in **Table 14-13**, to identify intersections in the study area that could have a potential traffic impact under the Project's 2015 Build scenario, taking into consideration the changes in land use and traffic patterns that have occurred since the 2006 FEIS. Three separate conditions were used to screen the 39 intersections within the traffic study area using two threshold criteria.

#### Condition 1

The Project's 2015 No Build intersection volume is greater than the 2010 No Build intersection volume analyzed in the 2006 FEIS, *and* the 2015 Build intersection volume increases by more than 50 vehicles as a result of incremental traffic generated by the Project. If this condition is met, the intersection is further analyzed using the Highway Capacity Software (HCS) to determine if there is a potential adverse traffic impact, which would be identified by Condition 1. The threshold of 50 vehicles was selected because it is consistent with the 50 vehicle threshold in the *CEQR Technical Manual* to identify the need for a more detailed traffic analysis.

**Table 14-13**  
**Intersection Screening Criteria**

Condition	Criteria 1	Criteria 2
	No Build Total Intersection Volumes	Build Increment Additional Intersection Volume
Condition 1	2015 No Build > 2010 No Build in 2006 FEIS	> 50 Vehicles
Condition 2	a. 2015 No Build < 2010 No Build in 2006 FEIS (0% to -2%)	> 50 Vehicles
	b. 2015 No Build < 2010 No Build in 2006 FEIS (-2% to -3%)	> 75 Vehicles
	c. 2015 No Build < 2010 No Build in 2006 FEIS (-3% to -4%)	> 100 Vehicles
	d. 2015 No Build < 2010 No Build in 2006 FEIS (< -4%)	> 125 Vehicles
Condition 3	All 34th Street Intersections	> 50 Vehicles
<b>Note:</b> Both the No Build Volume and Build Increment criteria must hold TRUE for the condition to apply.		

#### Condition 2

The Project's 2015 No Build intersection traffic volumes are less than the 2010 No Build volumes analyzed in the 2006 FEIS *and* there is an increase in the 2015 intersection volumes as a result of incremental traffic generated by the Project. Specific screening thresholds vary depending on the difference between the No Build intersection volumes for the Project and the incremental traffic volumes generated by the Project. This condition recognizes the possibility that lower relative intersection traffic volumes in the No Build condition, coupled with higher project generated traffic volumes, could result in a potential adverse traffic impact, which would be identified by Condition 2.



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### Condition 3

The Condition 3 test is applied to all intersections along West 34th Street within the study area. The screening criteria are met if the incremental traffic volumes generated by the Project results in an increase of more than 50 vehicles at an intersection along this corridor. The implementation of the 34th Street Bus Priority Lanes reduced vehicular capacity on West 34th Street. Therefore, even with reduced traffic volumes along this corridor, an increase in vehicle trips due to the Project could result in a potential adverse traffic impact, which would be identified by Condition 3.

### Screening Results

The screening criteria were applied to the 39 intersections in the study area. **Table 14-14** shows the number of intersections that meet the screening criteria during the AM, Midday, PM, and Saturday Midday peak hours. A total of 14 intersections exceed one or more screening criteria during one or more peak hours. The intersections that did not exceed the screening criteria would experience little or no traffic impacts and, therefore, were not analyzed further.

**Table 14-14**  
**Number of Intersections**  
**Meeting Screening Criteria**

Screening Criteria	Weekday AM	Weekday Midday	Weekday PM	Saturday Midday	Total
Condition 1	2	6	4	4	
Condition 2	1	0	2	1	
Condition 3	2	4	4	4	
Intersections Meeting One or More Condition Thresholds	5	10	10	9	
Intersections Meeting a Screening Criteria					14
<b>Note:</b> The number of intersections meeting the screening criteria is not additive since many intersections meet more than one screening criteria during one or more peak hours.					

**Table 14-15** shows a list of the intersections that exceed the screening criteria. These intersections were further analyzed using the HCS 2000 Versions 4.1f and evaluated with respect to Level of Service (LOS). One screened intersection at Seventh Avenue and West 32nd Street was not analyzed because it is a 'T' intersection with no conflicting vehicular traffic movements. Traffic impacts, if any, were determined using established CEQR criteria for impacts described in the traffic analysis section.

**Table 14-15**  
**List of Intersections**  
**Meeting the Screening Criteria**

	Intersection	AM	Midday	PM	Saturday Midday
1	6th Ave @ 31st Street				X
2	7th Ave @ 30th Street		X	X	
3	7th Ave @ 31st Street	X	X	X	X
4	7th Ave @ 32nd Street*		X	X	X
5	7th Ave @ 33rd Street		X	X	
6	7th Ave @ 34th Street	X	X	X	X
7	7th Ave @ 35th Street		X	X	
8	8th Ave @ 28th Street	X			X
9	8th Ave @ 31st Street	X		X	
10	8th Ave @ 34th Street	X	X	X	X
11	8th Ave @ 35th Street		X		
12	9th Ave @ 29th Street				X
13	9th Ave @ 34th Street		X	X	X
14	10th Ave @ 34th Street		X	X	X
<b>Note:</b> *No Conflicting Vehicle Movements					

**Tables 14-16, 14-17, 14-18, and 14-19** show the No Build 2010 and 2015 traffic volumes along with the additional traffic added to each intersection in the study area due to vehicular trips generated by the Project during the AM, Midday, PM, and Saturday Midday peak hours, respectively. **Table 14-20** shows a summary of affected intersections for all peak hours. Intersections that did not exceed the screening criteria would experience little or no traffic impacts and, therefore, were not analyzed further.

### *TRAFFIC ANALYSIS*

#### *Level of Service Criteria*

The operation of signalized intersections in the study area was analyzed in accordance with CEQR guidelines by applying the methodologies presented in the 2000 Highway Capacity Manual (HCM) Version 4.1f. This procedure evaluates signalized intersections for average delay per vehicle and LOS.

The LOS for the signalized intersections is based on the average stopped delay per vehicle for the various lane group movements within the intersection. This delay is the basis for an LOS determination for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. The levels of service are defined in **Table 14-21** below.

Although the HCM methodology calculates a volume-to-capacity (v/c) ratio, there is no strict relationship between v/c ratios and LOS as defined in the HCM. A high v/c ratio indicates substantial traffic passing through an intersection, but a high v/c ratio combined with low average delay actually represents the most efficient condition in terms of traffic engineering standards, where an approach or the whole intersection processes traffic close to its theoretical maximum with minimal delay. However, very high v/c ratios—especially those approaching or greater than 1.0—are often correlated with a deteriorated LOS. Other important variables affecting delay include cycle length, progression, and green time. LOS A and B indicate good operating conditions with minimal delay. At LOS C, the number of vehicles stopping is higher, but congestion is still fairly light. LOS D describes a condition where congestion levels are more noticeable and individual cycle failures (a condition where motorists may have to wait for more than one green phase to clear the intersection) can occur. The mid-point of this service level (45 seconds of delay) is considered the threshold of acceptable operating conditions. Conditions at LOS E and F reflect poor service levels, and cycle failures are frequent. The HCM methodology provides for a summary of the total intersection operating conditions, by identifying the two critical movements (the worst-case from each roadway) and calculating a summary of critical v/c ratio, delay, and LOS.

#### *Significant Impact Criteria*

According to the criteria presented in the *CEQR Technical Manual*, impacts are considered significant and require examination of mitigation if they result in an increase of 5 or more seconds of delay in a lane group over No Build levels beyond mid-LOS D. For No Build LOS E, a 4-second increase in delay is considered significant. For No Build LOS F, a 3-second increase in delay is considered significant. However, if the No Build LOS F condition already corresponds with a delay in excess of 120 seconds, an increase of 1.0 or more seconds of delay is considered significant. In addition, impacts are considered significant if levels of service deteriorate from acceptable A, B or C in the No Build conditions to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint of LOS D), or unacceptable LOS E or F in the future Build conditions. The above sliding scale is applicable only if the proposed project is expected to generate five or more vehicle trips through the analysis intersection during the peak hour being examined.

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Table 14-16

**AM Traffic Volume and Increment Comparison of FEIS (2006) and Currently Proposed Projects**

Analysis Location	Weekday AM															Condition		
	Existing Volumes			No Build Increments			No Build Volumes			Build Increments			Build Volumes			1-met?	2-met?	3-met?
	2006 FEIS (2005)	MDP (2008)	MDP-2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP-2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP-2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP-2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP-2006 FEIS			
8	Sixth Ave & 31st St	2,560	2,220	-340	204	218	14	2,829	2,511	-318	42	46	4	2,871	2,509	-362	N	
9	Sixth Ave & 32nd St	2,425	2,010	-415	86	177	91	2,572	2,253	-319	63	22	-41	2,635	2,266	-369	N	
10	Sixth Ave & 33rd St	2,070	1,760	-310	82	105	23	2,204	1,923	-281	88	21	-67	2,292	1,936	-356	N	
11	Sixth Ave / Bway & 34th St	3,975	3,150	-825	357	126	-231	4,432	3,380	-1,052	21	7	-14	4,453	3,382	-1,071	N	N
12	Sixth Ave & 35th St	2,445	2,090	-355	181	163	-18	2,688	2,322	-366	25	8	-17	2,713	2,322	-391	N	
13	Broadway & 35th St	1,290	900	-390	112	131	19	1,435	1,061	-374	13	7	-6	1,476	1,060	-416	N	
22	Seventh Ave & 35th St	2,185	1,910	-275	330	319	-11	2,570	2,292	-278	69	94	25	2,643	2,323	-320	N	
23	Seventh Ave & 34th St	3,125	2,690	-435	614	275	-339	3,818	3,054	-764	78	100	22	3,896	3,084	-812	N	Y
24	Seventh Ave & 33rd St	2,065	1,865	-200	317	298	-19	2,434	2,224	-210	144	114	-30	2,578	2,265	-313	N	
25	Seventh Ave & 32nd St	1,785	1,720	-65	257	243	-14	2,087	2,020	-67	-234	36	270	1,853	1,996	143	N	
26	Seventh Ave & 31st St	1,920	1,930	10	307	288	-18	2,275	2,282	7	-255	62	317	2,020	2,241	221	Y	
27	Seventh Ave & 30th St	2,170	2,030	-140	223	358	135	2,448	2,455	7	3	43	40	2,451	2,452	1	N	
28	Seventh Ave & 29th St	2,015	1,905	-110	164	262	97	2,230	2,229	-1	-40	13	53	2,190	2,227	37	N	
29	Seventh Ave & 28th St	1,645	1,990	345	155	229	73	1,842	2,284	442	-39	16	55	1,803	2,294	491	N	
32	Eighth Ave & 28th St	1,655	1,890	235	369	214	-155	2,066	2,166	100	50	51	1	2,116	2,185	69	Y	
33	Eighth Ave & 29th St	2,025	1,805	-220	378	168	-210	2,454	2,032	-422	50	49	-1	2,504	2,041	-463	N	
34	Eighth Ave & 30th St	2,215	2,025	-190	609	330	-279	2,880	2,422	-458	154	106	-48	3,034	2,453	-581	N	
35	Eighth Ave & 31st St	1,965	1,925	-40	742	193	-549	2,757	2,182	-575	-85	99	184	2,672	2,229	-443	N	Y
36	Eighth Ave & 33rd St	1,845	1,620	-225	505	197	-309	2,397	1,870	-527	224	151	-73	2,621	1,975	-646	N	
37	Eighth Ave & 34th St	2,885	2,390	-495	631	173	-458	3,589	2,642	-947	18	100	82	3,607	2,708	-899	N	Y
38	Eighth Ave & 35th St	2,020	1,760	-260	305	230	-75	2,376	2,048	-328	41	86	45	2,417	2,104	-313	N	
47	Ninth Ave & 35th St	2,005	1,635	-370	297	158	-139	2,353	1,847	-506	40	44	4	2,393	1,865	-528	N	
48	Ninth Ave & 34th St	2,190	1,860	-330	391	149	-242	2,636	2,070	-566	14	46	32	2,649	2,088	-561	N	N
49	Ninth Ave & 33rd St	2,055	1,775	-280	526	254	-272	2,633	2,088	-545	373	100	-273	3,006	2,134	-872	N	
50	Ninth Ave & 31st St	2,115	1,950	-165	735	265	-469	2,903	2,280	-623	324	113	-211	3,227	2,329	-898	N	
51	Ninth Ave & 30th St	2,800	2,370	-430	436	347	-89	3,307	2,796	-511	212	115	-97	3,519	2,838	-681	N	
52	Ninth Ave & 29th St	2,590	2,140	-450	206	172	-33	2,861	2,383	-478	108	53	-55	2,969	2,412	-557	N	
53	Ninth Ave & 28th St	2,235	2,105	-130	231	185	-46	2,522	2,359	-163	123	54	-69	2,645	2,386	-259	N	
56	Tenth Ave & 28th St	1,715	1,675	-40	411	216	-195	2,169	1,946	-223	26	5	-21	2,195	1,943	-252	N	
57	Tenth Ave & 29th St	2,070	1,710	-360	386	213	-172	2,508	1,980	-528	10	6	-4	2,518	1,978	-540	N	
58	Tenth Ave & 30th St	1,985	1,775	-210	489	300	-189	2,524	2,134	-390	8	19	11	2,532	2,135	-397	N	
59	Tenth Ave & 31st St	1,715	1,630	-85	522	242	-280	2,280	1,925	-355	111	13	-98	2,391	1,931	-460	N	
60	Tenth Ave & 33rd St	2,065	1,930	-135	639	282	-357	2,756	2,276	-480	226	28	-198	2,982	2,289	-693	N	
61	Tenth Ave & 34th St	2,765	2,385	-380	902	269	-633	3,737	2,733	-1,004	178	24	-154	3,915	2,744	-1,171	N	N
62	Tenth Ave & 35th St	2,165	1,990	-175	490	260	-231	2,710	2,315	-395	58	26	-32	2,768	2,334	-434	N	
66	Dyer Ave & 35th St	915	910	-5	96	55	-40	1,034	995	-39	30	13	-17	1,065	1,003	-62	N	
67	Dyer Ave & 34th St	1,355	1,075	-280	334	64	-270	1,723	1,174	-549	98	10	-88	1,821	1,174	-647	N	N
68	Dyer Ave & 31st St	1,080	1,050	-30	145	65	-80	1,252	1,149	-103	187	15	-172	1,439	1,153	-286	N	
69	Dyer Ave & 30th St	1,090	940	-150	122	132	10	1,240	1,103	-137	42	19	-23	1,262	1,104	-158	N	

Notes: 2006 FEIS – 2010 Build Year; MDP – Moynihan Station Development Project, the current Project (2015 Build Year). There is no No Build increment Network available in the 2006 FEIS. The No Build incremental layer is estimated by taking the difference between No Build Volumes and scaled existing volumes, which was calculated using 0.5% annual background growth rate compounded for 5 years (2005 to 2010). In the 2006 FEIS, the 2010 No Build Volumes were estimated based on Hudson Yards FGEIS, with some adjustments.  
If condition 1, 2, or 3 was met, this table registered the result with 'Y'; if the condition is not met, this table registered the result with 'N'.

Section 14: Traffic and Parking

Table 14-17  
Midday Traffic Volume and Increment Comparison of FEIS (2006) and Currently Proposed Projects

No		Weekday MD																	
		Existing Volumes			No Build Increments			No Build Volumes			Build Increments			Build Volumes			Condition	Condition	Condition
		2006 FEIS (2005)	MDP (2008)	MDP-2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	1-met?	2-met?	3-met?
8	Sixth Ave & 31st St	2,370	2,115	-255	145	252	107	2,575	2,437	-138	98	82	-16	2,673	2,462	-211	N	N	
9	Sixth Ave & 32nd St	2,275	1,930	-345	86	154	69	2,418	2,148	-270	70	42	-28	2,488	2,166	-322	N	N	
10	Sixth Ave & 33rd St	1,830	1,630	-200	79	119	40	1,955	1,802	-153	79	40	-39	2,034	1,820	-214	N	N	
11	Sixth Ave / Bway & 34th St	3,985	2,920	-1,065	295	108	-188	4,381	3,124	-1,257	76	10	-66	4,457	3,126	-1,331	N	N	N
12	Sixth Ave & 35th St	2,215	1,750	-465	139	181	42	2,410	1,989	-421	49	16	-33	2,459	1,990	-469	N	N	
13	Broadway & 35th St	1,350	805	-545	94	111	18	1,478	943	-535	50	14	-36	1,528	945	-583	N	N	
22	Seventh Ave & 35th St	1,925	1,815	-110	184	288	104	2,158	2,163	5	165	149	-16	2,323	2,224	-99	Y	N	
23	Seventh Ave & 34th St	2,980	2,560	-420	404	227	-177	3,459	2,871	-588	237	155	-82	3,696	2,935	-761	N	N	Y
24	Seventh Ave & 33rd St	1,770	1,790	20	191	248	57	2,006	2,097	91	240	184	-56	2,246	2,177	-69	Y	N	
25	Seventh Ave & 32nd St	1,470	1,565	95	132	191	59	1,639	1,807	168	-76	67	143	1,563	1,804	241	Y	N	
26	Seventh Ave & 31st St	1,565	1,750	185	189	290	101	1,794	2,098	304	-47	107	154	1,747	2,103	356	Y	N	
27	Seventh Ave & 30th St	1,745	1,650	-95	179	268	89	1,968	1,973	5	48	91	43	2,016	1,991	-25	Y	N	
28	Seventh Ave & 29th St	1,630	1,670	40	126	223	97	1,797	1,948	151	0	31	31	1,797	1,946	149	N	N	
29	Seventh Ave & 28th St	1,565	1,560	-5	142	215	73	1,747	1,827	80	-7	32	39	1,740	1,833	93	N	N	
32	Eighth Ave & 28th St	2,045	1,730	-315	323	197	-126	2,420	1,984	-436	93	78	-15	2,513	2,009	-504	N	N	
33	Eighth Ave & 29th St	2,110	1,840	-270	307	213	-94	2,470	2,113	-357	100	78	-22	2,570	2,130	-440	N	N	
34	Eighth Ave & 30th St	2,245	1,865	-380	484	353	-131	2,786	2,279	-507	262	182	-80	3,048	2,300	-748	N	N	
35	Eighth Ave & 31st St	2,065	1,965	-100	519	362	-157	2,636	2,391	-245	128	189	61	2,764	2,398	-366	N	N	
36	Eighth Ave & 33rd St	1,900	1,760	-140	392	282	-110	2,340	2,100	-240	368	231	-137	2,708	2,185	-523	N	N	
37	Eighth Ave & 34th St	2,930	2,475	-455	498	227	-271	3,502	2,783	-719	166	150	-16	3,678	2,830	-848	N	N	Y
38	Eighth Ave & 35th St	1,870	1,845	-25	269	301	32	2,186	2,207	21	70	136	66	2,256	2,241	-15	Y	N	
47	Ninth Ave & 35th St	1,845	1,560	-285	260	237	-23	2,152	1,849	-303	54	67	13	2,206	1,849	-357	N	N	
48	Ninth Ave & 34th St	2,265	1,900	-365	313	217	-96	2,635	2,180	-455	67	70	3	2,702	2,180	-522	N	N	Y
49	Ninth Ave & 33rd St	2,015	1,795	-220	496	319	-177	2,562	2,173	-389	403	159	-244	2,965	2,208	-757	N	N	
50	Ninth Ave & 31st St	2,130	1,950	-180	493	402	-91	2,677	2,416	-261	356	196	-160	3,033	2,437	-596	N	N	
51	Ninth Ave & 30th St	2,385	2,130	-255	435	409	-26	2,880	2,609	-271	309	196	-113	3,189	2,632	-557	N	N	
52	Ninth Ave & 29th St	2,230	2,090	-140	255	266	11	2,541	2,425	-116	147	88	-59	2,688	2,442	-246	N	N	
53	Ninth Ave & 28th St	2,070	1,965	-105	289	236	-53	2,411	2,266	-145	145	86	-59	2,556	2,286	-270	N	N	
56	Tenth Ave & 28th St	1,620	1,760	140	376	224	-153	2,037	2,042	5	45	13	-32	2,082	2,045	-37	N	N	
57	Tenth Ave & 29th St	1,780	1,885	105	371	256	-115	2,196	2,203	7	49	17	-32	2,245	2,206	-39	N	N	
58	Tenth Ave & 30th St	2,005	1,995	-10	423	324	-99	2,479	2,385	-94	53	35	-18	2,532	2,383	-149	N	N	
59	Tenth Ave & 31st St	1,730	1,730	0	474	303	-171	2,248	2,090	-158	90	32	-58	2,338	2,089	-249	N	N	
60	Tenth Ave & 33rd St	2,070	2,000	-70	573	362	-211	2,695	2,428	-267	229	61	-168	2,924	2,433	-491	N	N	
61	Tenth Ave & 34th St	2,985	2,545	-440	779	315	-463	3,839	2,944	-895	233	51	-182	4,072	2,957	-1,115	N	N	Y
62	Tenth Ave & 35th St	2,160	1,910	-250	384	326	-58	2,599	2,299	-300	75	51	-24	2,674	2,317	-357	N	N	
66	Dyer Ave & 35th St	910	730	-180	51	35	-16	984	789	-195	56	17	-39	1,040	800	-240	N	N	
67	Dyer Ave & 34th St	1,475	1,105	-370	257	25	-231	1,769	1,167	-602	166	15	-151	1,935	1,174	-761	N	N	N
68	Dyer Ave & 31st St	960	985	25	183	121	-62	1,167	1,138	-29	170	45	-125	1,337	1,140	-197	N	N	
69	Dyer Ave & 30th St	840	825	-15	113	121	8	974	973	-1	87	41	-46	1,061	973	-88	N	N	

Notes:

2006 FEIS – 2010 Build Year; MDP – Moynihan Station Development Project, the current Project (2015 Build Year).

\* There is no No Build increment Network available in the 2006 FEIS. The No Build incremental layer is estimated by taking the difference between No Build Volumes and scaled existing volumes, which was calculated using 0.5% annual background growth rate compounded for 5 years (2005 to 2010). In the 2006 FEIS, the 2010 No Build Volumes were estimated based on Hudson Yards FGEIS, with some adjustments.

If condition 1, 2, or 3 was met, this table registered the result with 'Y'; if the condition is not met, this table registered the result with 'N'.

# Moynihan Station Development Project Technical Memorandum

**Table 14-18**

**PM Traffic Volume and Increment Comparison of FEIS (2006) and Currently Proposed Projects**

Analysis Location		Weekday PM															Condition 1-met?	Condition 2-met?	Condition 3-met?
		Existing Volumes			No Build Increments			No Build Volumes			Build Increments			Build Volumes					
		2006 FEIS (2005)	MDP (2008)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS			
8	Sixth Ave & 31st St	2,605	2,025	-580	173	343	169	2,844	2,434	-410	85	79	-6	2,929	2,461	-468	N	N	
9	Sixth Ave & 32nd St	2,095	1,925	-170	97	166	69	2,245	2,154	-91	65	40	-25	2,310	2,170	-140	N	N	
10	Sixth Ave & 33rd St	1,850	1,640	-210	90	145	55	1,987	1,839	-148	88	37	-51	2,075	1,855	-220	N	N	
11	Sixth Ave / Bway & 34th St	3,565	3,135	-430	287	137	-150	3,942	3,375	-567	34	3	-31	4,076	3,375	-701	N	N	N
12	Sixth Ave & 35th St	2,300	1,895	-405	167	240	73	2,525	2,197	-328	42	17	-25	2,567	2,199	-368	N	N	
13	Broadway & 35th St	1,520	990	-530	123	125	2	1,681	1,148	-533	37	14	-23	1,718	1,150	-568	N	N	
22	Seventh Ave & 35th St	1,925	2,055	130	244	320	76	2,218	2,443	225	136	155	19	2,354	2,518	164	Y	N	
23	Seventh Ave & 34th St	2,485	2,805	320	669	228	-441	3,217	3,126	-91	158	151	-7	3,315	3,200	-115	N	N	Y
24	Seventh Ave & 33rd St	1,760	1,925	165	283	250	-33	2,087	2,238	151	215	186	-29	2,302	2,328	26	Y	N	
25	Seventh Ave & 32nd St	1,400	1,620	220	236	200	-36	1,671	1,873	202	-170	64	234	1,501	1,875	374	Y	N	
26	Seventh Ave & 31st St	1,910	1,720	-190	306	378	72	2,264	2,155	-109	-150	103	253	2,114	2,167	53	N	Y	
27	Seventh Ave & 30th St	1,595	1,650	55	308	309	1	1,943	2,013	70	15	85	70	1,958	2,023	65	Y	N	
28	Seventh Ave & 29th St	1,830	1,585	-245	226	340	114	2,102	1,978	-124	-31	33	64	2,071	1,974	-97	N	N	
29	Seventh Ave & 28th St	1,650	1,500	-150	260	289	29	1,952	1,838	-114	-36	36	72	1,914	1,843	-71	N	N	
32	Eighth Ave & 28th St	2,065	1,950	-115	377	191	-186	2,494	2,205	-289	81	83	2	2,575	2,238	-337	N	N	
33	Eighth Ave & 29th St	2,245	2,035	-210	343	323	-20	2,645	2,426	-219	86	79	-7	2,731	2,448	-283	N	N	
34	Eighth Ave & 30th St	2,105	2,070	-35	537	379	-157	2,695	2,518	-177	221	180	-41	2,916	2,538	-378	N	N	
35	Eighth Ave & 31st St	2,420	2,140	-280	585	493	-92	3,066	2,704	-362	-16	208	224	3,050	2,692	-358	N	Y	
36	Eighth Ave & 33rd St	1,990	1,820	-170	493	324	-169	2,533	2,204	-329	269	248	-21	2,802	2,297	-505	N	N	
37	Eighth Ave & 34th St	2,625	2,460	-165	661	241	-419	3,352	2,783	-569	78	164	86	3,431	2,837	-594	N	N	Y
38	Eighth Ave & 35th St	2,130	1,845	-285	306	337	31	2,490	2,243	-247	40	152	112	2,530	2,283	-247	N	N	
47	Ninth Ave & 35th St	2,125	1,700	-425	335	271	-64	2,514	2,027	-487	56	75	19	2,570	2,038	-532	N	N	
48	Ninth Ave & 34th St	2,020	2,035	15	403	238	-165	2,474	2,341	-133	27	75	48	2,501	2,351	-150	N	N	Y
49	Ninth Ave & 33rd St	2,000	1,945	-55	548	342	-206	2,599	2,351	-248	360	162	-198	2,959	2,396	-563	N	N	
50	Ninth Ave & 31st St	2,380	2,005	-375	605	494	-111	3,045	2,565	-480	521	206	-315	3,358	2,576	-782	N	N	
51	Ninth Ave & 30th St	2,060	1,975	-85	554	419	-135	2,666	2,459	-207	245	198	-47	2,911	2,485	-426	N	N	
52	Ninth Ave & 29th St	2,180	1,875	-305	360	362	2	2,595	2,298	-297	109	97	-12	2,704	2,321	-383	N	N	
53	Ninth Ave & 28th St	2,055	1,650	-405	391	276	-115	2,498	1,980	-518	119	93	-26	2,617	2,006	-611	N	N	
56	Tenth Ave & 28th St	2,185	1,520	-665	466	229	-236	2,706	1,799	-907	41	10	-31	2,747	1,802	-945	N	N	
57	Tenth Ave & 29th St	2,310	1,745	-565	456	322	-133	2,824	2,125	-699	31	15	-16	2,855	2,124	-731	N	N	
58	Tenth Ave & 30th St	2,410	1,895	-515	444	361	-83	2,915	2,318	-597	34	36	2	2,919	2,320	-599	N	N	
59	Tenth Ave & 31st St	1,930	1,530	-400	745	378	-367	2,724	1,959	-765	106	36	-70	2,830	1,950	-880	N	N	
60	Tenth Ave & 33rd St	2,355	1,885	-470	869	429	-439	3,283	2,377	-906	205	64	-141	3,488	2,374	-1,114	N	N	
61	Tenth Ave & 34th St	2,920	2,655	-265	1,201	377	-824	4,195	3,119	-1,076	192	54	-138	4,387	3,124	-1,263	N	N	Y
62	Tenth Ave & 35th St	2,400	2,040	-360	595	401	-194	3,056	2,509	-547	57	55	-2	3,113	2,519	-594	N	N	
66	Dyer Ave & 35th St	1,225	915	-310	58	43	-16	1,314	988	-326	46	20	-26	1,380	1,002	-378	N	N	
67	Dyer Ave & 34th St	1,245	1,370	125	429	13	-415	1,705	1,429	-276	120	16	-104	1,825	1,437	-388	N	N	N
68	Dyer Ave & 31st St	1,405	1,690	285	464	199	-265	1,904	1,944	40	176	47	-129	2,081	1,933	-148	N	N	
69	Dyer Ave & 30th St	880	1,060	180	105	127	22	1,007	1,222	215	69	37	-32	1,077	1,223	146	N	N	

Notes: 2006 FEIS – 2010 Build Year. MDP- Moynihan Station Development Project, the current Project (2015 Build Year).

\*There is no No Build increment Network available in the 2006 FEIS. The No Build incremental layer is estimated by taking the difference between No Build Volumes and scaled existing volumes, which was calculated using 0.5% annual background growth rate compounded for 5 years (2005 to 2010). In the 2006 FEIS, the 2010 No Build Volumes were estimated based on Hudson Yards FGEIS, with some adjustments.

If condition 1, 2, or 3 was met, this table registered the result with 'Y'; if the condition is not met, this table registered the result with 'N'.

Section 14: Traffic and Parking

**Table 14-19**  
**Saturday Midday Traffic Volume and Increment Comparison of FEIS (2006) and Currently Proposed Projects**

Analysis Location		Saturday MD																		Condition	Condition	Condition
		Existing Volumes			No Build Increments			No Build Volumes			Build Increments			Build Volumes								
		2006 FEIS (2005)	MDP (2008)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	2006 FEIS (2010)	MDP (2015)	MDP- 2006 FEIS	1-met?	2-met?	3-met?			
8	Sixth Ave & 31st St	2,165	2,300	135	95	278	182	2,315	2,653	338	132	97	-35	2,447	2,657	210	Y	N				
9	Sixth Ave & 32nd St	1,880	1,915	35	35	188	153	1,962	2,166	204	74	36	-38	2,036	2,160	124	N	N				
10	Sixth Ave & 33rd St	1,665	1,785	120	33	136	103	1,740	1,980	240	83	34	-49	1,823	1,976	153	N	N				
11	Sixth Ave / Bway & 34th St	3,460	3,065	-395	191	87	-104	3,738	3,253	-485	103	2	-101	3,841	3,250	-591	N	N	N			
12	Sixth Ave & 35th St	1,950	1,955	5	84	154	70	2,083	2,173	90	61	19	-42	2,144	2,165	21	N	N				
13	Broadway & 35th St	975	810	-165	74	96	22	1,074	933	-141	65	17	-48	1,139	927	-212	N	N				
22	Seventh Ave & 35th St	1,960	1,670	-290	166	339	173	2,175	2,064	-111	209	170	-39	2,384	2,088	-296	N	N				
23	Seventh Ave & 34th St	3,160	2,455	-705	364	284	-80	3,604	2,820	-784	308	167	-141	3,912	2,846	-1,066	N	N	Y			
24	Seventh Ave & 33rd St	1,930	1,615	-315	189	350	161	2,168	2,018	-150	287	199	-88	2,455	2,042	-413	N	N				
25	Seventh Ave & 32nd St	1,620	1,360	-260	121	247	126	1,782	1,652	-130	-68	89	157	1,714	1,628	-86	N	Y				
26	Seventh Ave & 31st St	1,905	1,745	-160	179	336	157	2,132	2,138	6	-10	148	158	2,122	2,124	2	Y	N				
27	Seventh Ave & 30th St	1,790	1,490	-300	183	334	151	2,018	1,873	-145	70	104	34	2,088	1,863	-225	N	N				
28	Seventh Ave & 29th St	1,670	1,695	25	143	261	118	1,855	2,012	157	14	39	25	1,869	1,997	128	N	N				
29	Seventh Ave & 28th St	1,575	1,705	130	142	219	77	1,757	1,980	223	3	37	34	1,760	1,974	214	N	N				
32	Eighth Ave & 28th St	1,810	1,880	70	232	199	-34	2,088	2,141	53	125	86	-39	2,213	2,137	-76	Y	N				
33	Eighth Ave & 29th St	1,905	1,870	-35	230	238	8	2,183	2,169	-14	138	89	-49	2,321	2,159	-162	N	N				
34	Eighth Ave & 30th St	2,065	1,780	-285	385	438	53	2,502	2,277	-225	349	194	-155	2,851	2,223	-628	N	N				
35	Eighth Ave & 31st St	2,180	2,035	-145	356	413	57	2,591	2,515	-76	146	216	70	2,843	2,453	-390	N	N				
36	Eighth Ave & 33rd St	1,925	1,705	-220	324	383	59	2,298	2,145	-153	477	242	-235	2,775	2,137	-638	N	N				
37	Eighth Ave & 34th St	3,125	2,480	-645	395	268	-127	3,599	2,830	-769	248	161	-87	3,847	2,823	-1,024	N	N	Y			
38	Eighth Ave & 35th St	2,085	1,840	-245	201	327	125	2,339	2,227	-112	106	150	44	2,423	2,205	-218	N	N				
47	Ninth Ave & 35th St	1,780	1,535	-245	216	230	14	2,041	1,815	-226	82	72	-10	2,134	1,770	-364	N	N				
48	Ninth Ave & 34th St	2,010	1,845	-165	268	217	-52	2,329	2,122	-207	104	73	-31	2,433	2,078	-355	N	N	Y			
49	Ninth Ave & 33rd St	1,950	1,820	-130	382	370	-12	2,381	2,250	-131	494	160	-334	2,875	2,200	-675	N	N				
50	Ninth Ave & 31st St	2,205	2,115	-90	425	433	7	2,686	2,618	-68	449	212	-237	3,135	2,568	-567	N	N				
51	Ninth Ave & 30th St	2,320	2,110	-210	406	461	54	2,785	2,640	-145	411	205	-206	3,196	2,576	-620	N	N				
52	Ninth Ave & 29th St	2,110	2,165	55	253	260	7	2,416	2,496	80	199	97	-102	2,615	2,475	-140	Y	N				
53	Ninth Ave & 28th St	2,085	2,015	-70	226	224	-2	2,364	2,306	-58	177	93	-84	2,541	2,286	-255	N	N				
56	Tenth Ave & 28th St	2,215	1,600	-615	179	192	13	2,450	1,844	-606	61	16	-45	2,511	1,846	-665	N	N				
57	Tenth Ave & 29th St	2,240	1,750	-490	205	223	18	2,502	2,031	-471	81	18	-63	2,583	2,031	-552	N	N				
58	Tenth Ave & 30th St	2,180	1,770	-410	177	320	143	2,412	2,148	-264	76	37	-39	2,488	2,121	-367	N	N				
59	Tenth Ave & 31st St	1,865	1,470	-395	360	274	-86	2,272	1,793	-479	107	39	-68	2,379	1,781	-598	N	N				
60	Tenth Ave & 33rd St	2,175	1,740	-435	445	356	-89	2,675	2,153	-522	282	65	-217	2,957	2,128	-829	N	N				
61	Tenth Ave & 34th St	2,665	2,195	-470	460	286	-174	3,192	2,553	-639	295	59	-236	3,488	2,552	-936	N	N	Y			
62	Tenth Ave & 35th St	2,095	1,740	-355	250	285	35	2,398	2,083	-315	100	57	-43	2,498	2,088	-410	N	N				
66	Dyer Ave & 35th St	1,200	800	-400	36	32	-3	1,266	859	-407	65	20	-45	1,331	871	-460	N	N				
67	Dyer Ave & 34th St	1,505	1,050	-455	218	29	-189	1,761	1,114	-647	203	20	-183	1,856	1,123	-733	N	N	N			
68	Dyer Ave & 31st St	1,505	1,065	-440	263	131	-132	1,806	1,231	-575	189	57	-132	1,996	1,222	-774	N	N				
69	Dyer Ave & 30th St	1,105	780	-325	84	158	73	1,217	963	-254	112	43	-69	1,329	938	-391	N	N				

**Notes:** 2006 FEIS – 2010 Build Year; MDP- Moynihan Station Development Project, the current Project (2015 Build Year).

\* There is no No Build increment Network available in the 2006 FEIS. The No Build incremental layer is estimated by taking the difference between No Build Volumes and scaled existing volumes, which was calculated using 0.5% annual background growth rate compounded for 5 years (2005 to 2010). In the 2006 FEIS, the 2010 No Build Volumes were estimated based on Hudson Yards FGEIS, with some adjustments.  
If condition 1, 2, or 3 was met, this table registered the result with 'Y'; if the condition is not met, this table registered the result with 'N'.

**Table 14-20**  
**Comparison of FEIS (2006) and**  
**Currently Proposed Projects—Screening Criterion**

Analysis Location		Meets Condition 1?				Meets Condition 2?				Meets Condition 3?				Meets 1 or More Screening Criteria?			
		AM	MD	PM	SAT MD	AM	MD	PM	SAT MD	AM	MD	PM	SAT MD	AM	MD	PM	SAT MD
8	Sixth Ave & 31st St	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y
9	Sixth Ave & 32nd St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
10	Sixth Ave & 33rd St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
11	Sixth Ave / Bway & 34th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
12	Sixth Ave & 35th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
13	Broadway & 35th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
22	Seventh Ave & 35th St	N	Y	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	N
23	Seventh Ave & 34th St	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
24	Seventh Ave & 33rd St	N	Y	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	N
25	Seventh Ave & 32nd St	N	Y	Y	N	N	N	N	N	Y	N	N	N	N	Y	Y	Y
26	Seventh Ave & 31st St	Y	Y	N	Y	N	N	Y	N	N	N	N	N	Y	Y	Y	Y
27	Seventh Ave & 30th St	N	Y	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	N
28	Seventh Ave & 29th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
29	Seventh Ave & 28th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
32	Eighth Ave & 28th St	Y	N	N	Y	N	N	N	N	N	N	N	N	Y	N	N	Y
33	Eighth Ave & 29th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
34	Eighth Ave & 30th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
35	Eighth Ave & 31st St	N	N	N	N	Y	N	Y	N	N	N	N	N	Y	N	Y	N
36	Eighth Ave & 33rd St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
37	Eighth Ave & 34th St	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
38	Eighth Ave & 35th St	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y	N	N
47	Ninth Ave & 35th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
48	Ninth Ave & 34th St	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	Y	Y	Y
49	Ninth Ave & 33rd St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
50	Ninth Ave & 31st St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
51	Ninth Ave & 30th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
52	Ninth Ave & 29th St	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	Y
53	Ninth Ave & 28th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
56	Tenth Ave & 28th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
57	Tenth Ave & 29th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
58	Tenth Ave & 30th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
59	Tenth Ave & 31st St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
60	Tenth Ave & 33rd St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
61	Tenth Ave & 34th St	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	Y	Y	Y
62	Tenth Ave & 35th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
66	Dyer Ave & 35th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
67	Dyer Ave & 34th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
68	Dyer Ave & 31st St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
69	Dyer Ave & 30th St	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

**Note:** If condition 1, 2, or 3 was met, this table will register the result with 'Y'; if the condition is not met, this table will register the result with 'N'.

**Table 14-21**  
**LOS Criteria for Signalized Intersections**

Level-of-Service (LOS)	Average Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 20.0 seconds
C	> 20.0 and ≤ 35.0 seconds
D	> 35.0 and ≤ 55.0 seconds
E	> 55.0 and ≤ 80.0 seconds
F	> 80.0 seconds

**Sources:** Transportation Research Board. Highway Capacity Manual, 2000.

### Intersections with Impacts

The 13 intersections identified during the screening analysis were analyzed to determine if there would be an impact on traffic for each of the affected analysis hours in the current 2015 Build year.<sup>1</sup> However, only four of the intersections analyzed met the CEQR criteria for traffic impacts during one or more peak hours, as shown in **Table 14-22**.

**Table 14-22**  
**Intersections Impacted by the Project (Prior to Mitigation)**

Intersection Number and Location	AM	Midday	PM	Saturday Midday
2 7th Ave @ 30th Street		X		
3 7th Ave @ 31st Street		X	X	X
4 7th Ave @ 33rd Street		X	X	
9 8th Ave @ 34th Street		X		

By comparison, the 2006 FEIS identified 12 intersections that required mitigation for one or more peak periods. Accordingly, the Project, when analyzed in connection with the changes to the traffic network, results in fewer impacted intersections from the Project analyzed in the 2006 FEIS. Further, three of the twelve intersections did not satisfy any of the screening criteria and were not analyzed, because impacts would have been highly unlikely.

### Mitigation Measures

**Table 14-23** describes the proposed mitigation measures at each of the intersections for the peak hours impacted by the Project.

**Table 14-23**  
**Proposed Mitigation Measures**

ID	Intersection	Future With The Project	Future With The Project And Mitigation
<b>Midday Peak Period</b>			
27	Seventh Ave & 30th St	WB: G=36 NB: G=44	WB: G=39 NB: G=41
26	Seventh Ave & 31st St	WB: (1Lane) LT	WB: (2 Lanes) L, T – An additional lane from prohibiting parking on the south side of 31st St. and restriping.
		WB: (1Lane) LT	WB: (2 Lanes) L, T – An additional lane from prohibiting parking on the south side of 33rd St., and restriping.
24	Seventh Ave & 33rd St	SB: (3 Lanes) T, T, TR WB: G=23	SB: (4 Lanes) T, T, T, TR – An additional lane from prohibiting parking on the west side of Seventh Ave.
		SB: G=57	WB: G=29
			SB: G=51
23	Eight Ave & 34th St	EB/WB: G=40 NB: G= 33	EB/WB: G=39 NB: G= 34
<b>PM Peak Period</b>			
26	Seventh Ave & 31st St	WB: (1Lane) LT	WB: (2 Lanes) L, T – An additional lane from prohibiting parking on the south side of 31st St. and restriping.
		WB: (1Lane) LT	WB: (2 Lanes) L, T – An additional lane from prohibiting parking on the south side of 33rd St., and restriping.
24	Seventh Ave & 33rd St	SB: (3 Lanes) T, T, TR WB: G=23	SB: (4 Lanes) T, T, T, TR – An additional lane from prohibiting parking on the west side of Seventh Ave.
		SB: G=57	WB: G=29
			SB: G=51
<b>Saturday Midday Peak Period</b>			
26	Seventh Ave & 31st St	WB: (1Lane) LT	WB: (2 Lanes) L, T – An additional lane from prohibiting parking on the south side of 31st St. and restriping.

<sup>1</sup> Intersection 4—Seventh Avenue at West 32nd Street—was not analyzed because there are no conflicting traffic movements.



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The traffic impacts at the four identified intersections can be fully mitigated by standard traffic engineering methods: primarily signal timing and providing an additional approach lane and by restricting parking, where needed to better accommodate turning movements.

**Table 14-24** shows a comparison of the mitigation measures proposed for the Project compared to the mitigation measures identified in the 2006 FEIS. For the four locations where traffic impacts were identified in the 2015 Build condition, the identified mitigation measures are shown. In general, these are low cost mitigation measures, similar to mitigation measures proposed in the 2006 FEIS.

**Table 14-24**

**Comparison of Mitigation Measures of the Current Project (2015 Build Year) and 2010 Build Conditions per 2006 FEIS**

Intersection	Weekday AM		Weekday Midday		Weekday PM		Saturday Midday	
	Project	2006 FEIS	Project	2006 FEIS	Project	2006 FEIS	Project	2006 FEIS
Seventh Ave & W. 30th St	No Impact	No Impact	Signal Retiming	No Impact	No Impact	No Impact	No Impact	No Impact
Seventh Ave & W. 31st St	No Impact	No Impact	Daylighting	No Impact	Daylighting	No Impact	Daylighting	No Impact
Seventh Ave & W. 33rd St	No Impact	No Impact	Daylighting and Signal Retiming	No Impact	Daylighting Signal Retiming	No Impact	No Impact	Signal Retiming
Seventh Ave & W. 34th St	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	Daylighting Signal Retiming
Eighth Ave & W. 28th St	No Impact	Signal Retiming	No Impact	No Impact	No Impact	No Impact	No Impact	Signal Retiming
Eighth Ave & W. 31st St	No Impact	No Impact	No Impact	Signal Retiming	No Impact	Daylighting	No Impact	Signal Retiming
Eighth Ave & W. 34th St	No Impact	No Impact	Signal Retiming	No Impact	No Impact	No Impact	No Impact	Daylighting Signal Retiming
Ninth Ave & W. 29th St	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	Signal Retiming
Ninth Ave & W. 34th St	No Impact	Signal Retiming	No Impact	Signal Retiming	No Impact	Signal Retiming	No Impact	Daylighting Signal Retiming

**Table 14-25** compares the traffic analysis results for the No Build, Build and Build with mitigation conditions for the AM, Midday, PM and Saturday Midday analysis hours for the four intersection locations where traffic impacts were identified. For each condition, the traffic volume, V/C ratio, Delay and LOS are shown for each lane group. The Build with mitigation columns in **Tables 14-25a** through **14-25d** are only filled in where significant traffic impacts were identified, which required mitigation measures to be developed.

## SUMMARY AND CONCLUSIONS

The Project as currently proposed would be expected to produce fewer traffic impacts and at fewer locations than concluded in the 2006 FEIS. The 2006 FEIS analysis identified traffic impacts at seven intersection locations for the 2010 Build conditions compared to four intersection locations identified for the Project's 2015 Build conditions. The traffic impacts at the four locations can be fully mitigated by means of modest traffic engineering measures, such as signal retiming or parking restrictions at intersection approaches in order to provide an additional lane for turning movements.

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**Table 14-25a**  
**AM Peak Hour**  
**Summary of Traffic Analysis Results**  
**No Build, Build, and Mitigated Build Conditions**

ID	Intersection	Lane Group	AM Peak Period										
			No Build				Build				Build with Mitigation Measures		
			Volume	V/C	Delay	LOS	Volume	V/C	Delay	LOS	V/C	Delay	LOS
8	Sixth Ave & 31st St												
	Westbound	TR											
	Northbound	LT											
	Intersection												
27	Seventh Ave & 30th St												
	Eastbound	T											
		R											
	Southbound	LT											
	Intersection												
26	Seventh Ave & 31st St												
	Westbound	LT (L)	574	1.04	75.6	E	557	1.02	67.4	E			
		(T)											
	Southbound	TR	1708	0.79	19.6	B	1683	0.78	19.1	B			
	Intersection		2282		33.7	C	2240		31.1	C			
24	Seventh Ave & 33rd St												
	Westbound	L											
		T (LT)											
	Southbound	TR											
	Intersection												
23	Seventh Ave & 34th St												
	Eastbound	T (TR)	451	0.87	41.9	D	452	0.87	42.1	D			
	Westbound	LT	651	0.74	28.4	C	652	0.74	28.4	C			
	Southbound	T	1910	0.81	18.4	B	1938	0.83	18.8	B			
	Intersection		3012		24.1	C	3042		24.3	C			
22	Seventh Ave & 35th St												
	Westbound	L											
		LT											
	Southbound	TR											
	Intersection												
32	Eighth Ave & 28th St												
	Eastbound	LT	616	0.7	28.2	C	619	0.7	28.2	C			
	Northbound	TR	1551	0.64	13.2	B	1566	0.64	13.3	B			
	Intersection		2167		17.4	B	2185		17.5	B			
35	Eighth Ave & 31st St												
	Westbound	TR	540	0.62	22.3	C	561	0.64	22.9	C			
	Northbound	LT	1640	0.75	19.8	B	1667	0.76	20.0+	C			
	Intersection		2180		20.4	C	2228		20.7	C			

Table 14-25a (cont'd)

AM Peak Hour

Summary of Traffic Analysis Results

No Build, Build, and Mitigated Build Conditions

ID	Intersection	Lane Group	AM Peak Period										
			No Build				Build				Build with Mitigation Measures		
			Volume	V/C	Delay	LOS	Volume	V/C	Delay	LOS	V/C	Delay	LOS
37	Eighth Ave & 34th St												
Eastbound		T	396	0.71	27.2	C	396	0.71	27.2	C			
Westbound		TR (T)	428	0.38	17.6	B	428	0.38	17.6	B			
		R	192	0.6	26.8	C	193	0.61	26.9	C			
Northbound		LTR	1624	0.94	36.6	D	1689	0.98	42.8	D			
Intersection			2640		31.4	C	2706		35.4	D			
38	Eighth Ave & 35th St												
Westbound		TR											
Northbound		LT											
Intersection													
52	Ninth Ave & 29th St												
Westbound		LT											
Southbound		TR											
Intersection													
48	Ninth Ave & 34th St												
Eastbound		T (TR)											
		R1											
Westbound		LDEF											
		T (LT)											
Southbound		LTR											
Intersection													
61	Tenth Ave & 34th St												
Eastbound		LT (L)											
		T											
Westbound		T (TR)											
		R1											
Northbound		LTR											
Intersection													
Note: <b>Bold</b> = Movement requires mitigation													

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**Table 14-25b**  
**Midday Peak Hour**  
**Summary of Traffic Analysis Results**  
**No Build, Build, and Mitigated Build Conditions**

ID	Intersection	Lane Group	Midday Peak Period										
			No Build				Build				Build with Mitigation Measures		
			Volume	V/C	Delay	LOS	Volume	V/C	Delay	LOS	V/C	Delay	LOS
8	Sixth Ave & 31st St												
	Westbound	TR											
	Northbound	LT											
	Intersection												
27	Seventh Ave & 30th St												
	Eastbound	T	429	0.9	47.1	D	449	0.94	54.1	D	0.87	40.3	D
		R	150	0.37	21.5	C	151	0.38	21.6	C	0.34	18.9	B
	Southbound	LT	1393	0.62	14.5	B	1391	0.62	14.5	B	0.67	17.5	B
	Intersection		1972		22.1	C	1991		23.9	C		22.8	C
26	Seventh Ave & 31st St												
	Westbound	LT (L)	624	1.19	126.9	F	631	1.2	131.9	F	0.4	20.8	C
		(T)									0.78	31.8	C
	Southbound	TR	1473	0.74	18.3	B	1471	0.74	18.3	B	0.74	18.3	B
	Intersection		2097		50.6	D	2102		52.4	D		21.5	C
24	Seventh Ave & 33rd St												
	Westbound	L									0.7	43.1	D
		T (LT)	295	1.17	144.4	F	314	1.22	162	F	0.34	25.2	C
	Southbound	TR	1803	0.86	10.9	B	1864	0.91	13.8	B	0.75	11.5	B
	Intersection		2098		29.7	C	2178		35.1	D		14.7	B
23	Seventh Ave & 34th St												
	Eastbound	T (TR)	394	0.76	33.2	C	395	0.76	33.3	C			
	Westbound	LT	701	0.76	29.6	C	702	0.77	29.7	C			
	Southbound	T	1766	0.77	17.3	B	1828	0.8	18	B			
	Intersection		2861		22.5	C	2925		22.9	C			
22	Seventh Ave & 35th St												
	Westbound	L	166	0.54	28.1	C	168	0.54	28.3	C			
		LT	277	0.71	33.9	C	277	0.71	33.9	C			
	Southbound	TR	1720	0.76	15.6	B	1780	0.79	16.2	B			
	Intersection		2163		18.9	B	2225		19.3	B			
32	Eighth Ave & 28th St												
	Eastbound	LT											
	Northbound	TR											
	Intersection												
35	Eighth Ave & 31st St												
	Westbound	TR											
	Northbound	LT											
	Intersection												
37	Eighth Ave & 34th St												
	Eastbound	T	363	0.6	23	C	363	0.6	23	C	0.61	24.1	C
	Westbound	TR (T)	489	0.42	18.2	B	489	0.42	18.2	B	0.43	19	B
		R	186	0.6	26.9	C	187	0.6	27.1	C	0.63	28.9	C
	Northbound	LTR	1743	0.98	42.7	D	1789	1.01	49.2	D	0.98	41.2	D
	Intersection		2781		34.7	C	2828		39	D		34.4	C
38	Eighth Ave & 35th St												
	Westbound	TR	402	0.98	63.6	E	401	0.98	62.5	E			
	Northbound	LT	1805	0.82	21.8	C	1840	0.84	22.5	C			
	Intersection		2207		29.4	C	2241		29.6	C			

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**Table 14-25b (cont'd)**  
**Midday Peak Hour**  
**Summary of Traffic Analysis Results**  
**No Build, Build, and Mitigated Build Conditions**

ID	Intersection	Lane Group	Midday Peak Period										
			No Build				Build				Build with Mitigation Measures		
			Volume	V/C	Delay	LOS	Volume	V/C	Delay	LOS	V/C	Delay	LOS
52	Ninth Ave & 29th St												
	Westbound	LT											
	Southbound	TR											
	Intersection												
48	Ninth Ave & 34th St												
	Eastbound	T (TR)	288	0.72	36.7	D	288	0.72	36.7	D			
		R1	189	0.9	67	E	190	0.9	67.8	E			
	Westbound	LDEF											
		T (LT)	577	0.7	21.9	C	588	0.71	22.4	C			
	Southbound	LTR	1602	0.94	34.7	C	1591	0.93	34	C			
	Intersection		2656		34.4	C	2657		34.1	C			
61	Tenth Ave & 34th St												
	Eastbound	LT (L)	252	0.39	24.7	C	252	0.39	24.7	C			
		T											
	Westbound	T (TR)	398	0.46	25.4	C	403	0.47	25.5	C			
		R1	170	0.53	30.1	C	170	0.53	30.1	C			
	Northbound	LTR	2124	0.83	14.1	B	2131	0.83	14.2	B			
	Intersection		2944		17.5	B	2956		17.5	B			
Note: <b>Bold</b> = Movement requires mitigation													

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**Table 14-25c**  
**PM Peak Hour**  
**Summary of Traffic Analysis Results**  
**No Build, Build, and Mitigated Build Conditions**

ID	Intersection	Lane Group	PM Peak Period										
			No Build				Build				Build with Mitigation Measures		
			Volume	V/C	Delay	LOS	Volume	V/C	Delay	LOS	V/C	Delay	LOS
8	Sixth Ave & 31st St												
	Westbound	TR											
	Northbound	LT											
	Intersection												
27	Seventh Ave & 30th St												
	Eastbound	T	410	0.84	40	D	423	0.87	42.7	D			
		R	169	0.45	23.6	C	165	0.44	23.3	C			
	Southbound	LT	1436	0.61	14.2	B	1434	0.61	14.2	B			
	Intersection		2015		20.2	C	2022		20.9	C			
26	Seventh Ave & 31st St												
	Westbound	LT (L)	582	1.08	88.9	F	592	1.1	94.4	F	0.41	21.2	C
		(T)									0.69	27	C
	Southbound	TR	1573	0.72	17.8	B	1576	0.73	17.8	B	0.73	17.8	B
	Intersection		2155		37	D	2168		38.7	D		19.9	B
24	Seventh Ave & 33rd St												
	Westbound	L									0.64	41.3	D
		T (LT)	240	0.97	82.5	F	256	1.01	91.6	F	0.3	24.5	C
	Southbound	TR	1998	0.92	14.7	B	2073	0.98	23.2	C	0.81	13	B
	Intersection		2238		22	C	2329		30.7	C		15.1	B
23	Seventh Ave & 34th St												
	Eastbound	T (TR)	373	0.7	30.4	C	373	0.7	30.4	C			
	Westbound	LT	785	0.86	35.0-	C	785	0.86	35.0-	C			
	Southbound	T	1952	0.79	17.7	B	2026	0.82	18.5	B			
	Intersection		3110		23.6	C	3184		24	C			
22	Seventh Ave & 35th St												
	Westbound	L	129	0.47	26.7	C	131	0.48	27	C			
		LT	434	1.1	100.5	F	433	1.09	99.7	F			
	Southbound	TR	1881	0.75	15.1	B	1954	0.78	15.8	B			
	Intersection		2444		30.9	C	2518		30.8	C			
32	Eighth Ave & 28th St												
	Eastbound	LT											
	Northbound	TR											
	Intersection												
35	Eighth Ave & 31st St												
	Westbound	TR	763	0.83	30.5	C	742	0.81	29.2	C			
	Northbound	LT	1940	0.92	27.1	C	1950	0.92	27.4	C			
	Intersection		2703		28.1	C	2692		27.9	C			
37	Eighth Ave & 34th St												
	Eastbound	T	362	0.6	23	C	362	0.6	23	C			
	Westbound	TR (T)	553	0.47	18.9	B	553	0.47	18.9	B			
		R	201	0.63	27.8	C	201	0.63	27.8	C			
	Northbound	LTR	1665	0.92	33.9	C	1720	0.95	37.9	D			
	Intersection		2781		29.1	C	2836		31.6	C			
38	Eighth Ave & 35th St												
	Westbound	TR											
	Northbound	LT											
	Intersection												

Table 14-25c (cont'd)

PM Peak Hour

Summary of Traffic Analysis Results

No Build, Build, and Mitigated Build Conditions

ID	Intersection	Lane Group	PM Peak Period										
			No Build				Build				Build with Mitigation Measures		
			Volume	V/C	Delay	LOS	Volume	V/C	Delay	LOS	V/C	Delay	LOS
52	Ninth Ave & 29th St												
	Westbound	LT											
	Southbound	TR											
	Intersection												
48	Ninth Ave & 34th St												
	Eastbound	T (TR)	265	0.64	32.5	C	265	0.64	32.5	C			
		R1	260	1.18	144.8	F	262	1.18	148	F			
	Westbound	LDEF	227	0.82	43.7	D	234	0.84	46.8	D			
		T (LT)	418	0.66	21.9	C	425	0.67	22.3	C			
	Southbound	LTR	1695	1.06	63.6	E	1691	1.05	62.8	E			
	Intersection		2865		60.4	E	2877		60.5	E			
61	Tenth Ave & 34th St												
	Eastbound	LT (L)	256	0.42	25.3	C	257	0.42	25.3	C			
		T											
	Westbound	T (TR)	462	0.6	28.4	C	469	0.61	28.6	C			
		R1	367	1.09	105.4	F	367	1.09	105.4	F			
	Northbound	LTR	2034	0.97	25.9	C	2031	0.97	25.7	C			
	Intersection		3119		35.6	D	3124		35.5	D			
Note: <b>Bold</b> = Movement requires mitigation													

Section 14: Traffic and Parking

**Table 14-25d**  
**Saturday Midday Peak Hour**  
**Summary of Traffic Analysis Results**  
**No Build, Build, and Mitigated Build Conditions**

ID	Intersection	Lane Group	SAT MIDDAY PEAK PERIOD										
			No Build				Build				Build with Mitigation Measures		
			Volume	V/C	Delay	LOS	Volume	V/C	Delay	LOS	V/C	Delay	LOS
8	Sixth Ave & 31st St												
	Westbound	TR	746	0.65	22.9	C	748	0.65	22.9	C			
	Northbound	LT	1908	0.83	21.4	C	1909	0.84	21.5	C			
	Intersection		2654		21.9	C	2657		21.9	C			
27	Seventh Ave & 30th St												
	Eastbound	T											
		R											
	Southbound	LT											
	Intersection												
26	Seventh Ave & 31st St												
	Westbound	LT (L)	708	1.22	137.3	F	714	1.23	142	F	0.28	18.5	B
		(T)									0.91	43.3	D
	Southbound	TR	1430	0.63	16.1	B	1410	0.62	15.9	B	0.62	15.9	B
	Intersection		2138		56.2	E	2124		58.3	E		23.6	C
24	Seventh Ave & 33rd St												
	Westbound	L											
		T (LT)											
	Southbound	TR											
	Intersection												
23	Seventh Ave & 34th St												
	Eastbound	T (TR)	438	0.45	21.7	C	438	0.45	21.7	C			
	Westbound	LT	705	0.53	22.5	C	705	0.53	22.5	C			
	Southbound	T	1677	0.68	15.3	B	1703	0.69	15.5	B			
	Intersection		2820		18.1	B	2846		18.2	B			
22	Seventh Ave & 35th St												
	Westbound	L											
		LT											
	Southbound	TR											
	Intersection												
32	Eighth Ave & 28th St												
	Eastbound	LT	464	0.49	23.1	C	468	0.5	23.2	C			
	Northbound	TR	1677	0.66	13.5	B	1668	0.66	13.5	B			
	Intersection		2141		15.6	B	2136		15.6	B			
35	Eighth Ave & 31st St												
	Westbound	TR											
	Northbound	LT											
	Intersection												
37	Eighth Ave & 34th St												
	Eastbound	T	382	0.3	16.6	B	382	0.3	16.6	B			
	Westbound	TR (T)	684	0.48	18.8	B	684	0.48	18.8	B			
		R											
	Northbound	LTR	1763	0.93	34.7	C	1756	0.93	34.8	C			
	Intersection		2829		28.4	C	2822		28.5	C			
38	Eighth Ave & 35th St												
	Westbound	TR											
	Northbound	LT											
	Intersection												



**Table 14-25d (cont'd)**  
**Saturday Midday Peak Hour**  
**Summary of Traffic Analysis Results**  
**No Build, Build, and Mitigated Build Conditions**

No Build, Build, and Mitigated Build Conditions													
ID	Intersection	Lane Group	SAT MIDDAY PEAK PERIOD										
			No Build				Build				Build with Mitigation Measures		
			Volume	V/C	Delay	LOS	Volume	V/C	Delay	LOS	V/C	Delay	LOS
52	Ninth Ave & 29th St												
	Westbound	LT	639	0.65	25.5	C	639	0.65	25.5	C			
	Southbound	TR	1857	0.96	28.8	C	1836	0.95	27.2	C			
	Intersection		2496		28	C	2475		26.8	C			
48	Ninth Ave & 34th St												
	Eastbound	T (TR)	573	0.72	31.7	C	576	0.73	31.9	C			
		R1											
	Westbound	LDEF	183	0.65	25.2	C	189	0.67	26.2	C			
		T (LT)	372	0.27	13.4	B	379	0.27	13.5	B			
	Southbound	LTR	1567	0.8	25.6	C	1509	0.78	24.8	C			
	Intersection		2695		25.2	C	2653		24.8	C			
61	Tenth Ave & 34th St												
	Eastbound	LT (L)	113	0.43	28.2	C	111	0.43	28.2	C			
		T	247	0.27	22.6	C	249	0.27	22.6	C			
	Westbound	T (TR)	316	0.41	24.8	C	323	0.42	24.9	C			
		R1											
	Northbound	LTR	1877	0.67	10.8	B	1870	0.67	10.8	B			
	Intersection		2553		14.4	B	2553		14.5	B			
Note: <b>Bold</b> = Movement requires mitigation													

**Note:** **Bold** = Movement requires mitigation

## PARKING

The 2006 FEIS showed that off-street parking occupancy levels would increase from a weekday peak of 80 percent in 2005 to near capacity of 97 percent in 2010 with the Project. On-street parking, which is scarce in the area of the Project site, would be at or over capacity throughout.

The parking study area in the 2009 WRY FEIS extended from 42nd Street on the north, Eighth Avenue on the west, 23rd Street on the south and the Hudson River on the west. The 2009 WRY FEIS reported that off-street parking demand within this parking study area under that project's 2017 No Build condition, which includes the Project, would be expected to exceed the available parking supply during the weekday midday period by approximately 2,050 spaces. The Moynihan Station Project considered in the WRY FEIS was larger than the current Project. It was further reported that the available off-street parking supply on the far west side of Manhattan would be able to accommodate the overnight parking demand under that project's 2017 No Build condition with nearly 1,150 spaces still available. Therefore, under the 2015 Build condition for the Project, it can be concluded that there would be a parking short-fall during the weekday midday period, but that overnight parking demand could be satisfied.

According to the *CEQR Technical Manual*, for proposed actions within the Manhattan Business District (defined as the area south of 61st Street), the inability of the project or the surrounding area to accommodate projected future parking demands would be considered a parking shortfall, but is not deemed to be a significant adverse impact. This guidance reflects the City's policies to discourage parking in the Midtown area. The unsatisfied demand for parking spaces during the midday peak utilization period would result in vehicles parking outside of the parking study area

and motorists walking greater distances to their destinations. As parking shortfalls do not constitute significant adverse impacts under CEQR guidance, mitigation is not required.

## **C. PROJECT DESIGN CHANGES**

### **PHASE 1**

Phase 1 of the Project would largely be constructed entirely underground, with the exception of the new Eighth Avenue station entrances, and would not interfere with vehicular traffic. As a result, there would be no significant adverse traffic impacts as a result of Phase 1 of the Project.

### **PHASE 2**

Phase 2 construction of the Project would be expected to be completed by 2015. As detailed above in the “Changes to Background Conditions” portion of this Section, there are no project design changes that would significantly alter the conclusions of the 2006 FEIS.

With the Project, slightly modified mitigation would be required to offset changes in the background conditions since 2006, but there are no project design changes which significantly alter the Project’s trip-generation or the surrounding transportation network. However, under the Amtrak Station Option it is likely that some taxi drop offs would move west on West 31st and 33rd Streets between Eighth and Ninth Avenues, as well as onto Ninth Avenue. Moving some taxi trips west would result in minor changes to some localized-volumes, but would not have effects that extend throughout the overall network, and would not change the conclusions described above. \*

**A. INTRODUCTION**

This section evaluates the transit and pedestrian conditions for areas potentially affected by the Project. A discussion of station circulation within the train station (including the corridors serving the Eighth Avenue subway) is presented separately, in Section 13. There have been a number of changes in the study area since the 2006 FEIS for the Project including changes in existing pedestrian volumes and transit riders, planned development projects, as well as changes in the No Action development for the Farley Complex. There have also been updates on transportation planning assumptions since the completion of the 2006 FEIS.

The 2006 FEIS provided detailed analyses of the 34th Street-Penn Station elements (stairways and control areas) serving patrons accessing the Seventh Avenue (1/2/3) and Eighth Avenue (A/C/E) subway lines and pedestrian elements (sidewalks, corner reservoirs, and crosswalks) at nine intersections in the immediate area of the Project site. The 2006 FEIS concluded that the development program analyzed for the 2010 Build condition would not result in any significant adverse impacts on subway stairways and control areas with the incorporation of proposed station improvements and mitigation measures outlined in the 2005 No. 7 Subway Extension—Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement (FGEIS). For pedestrian conditions, 14 corner or crosswalk locations were projected to be significantly impacted during the weekday AM, midday, PM, and Saturday midday peak hours. Measures proposed to fully mitigate those impacts included widening of sidewalks and crosswalks and removal of sidewalk obstructions. The evaluation of the Project in this Technical Memorandum considers the same transit and pedestrian study areas and provides a summary of the current findings for the 2015 Build year and compares these findings with the related findings made for the 2010 Build year in the 2006 FEIS.

The purpose of this section is to assess the potential transit and pedestrian impacts of the Project, taking the changes that have occurred since the 2006 FEIS into account and comparing conditions with the proposed Project with those conditions described in the 2006 FEIS, which concluded that the Project would not result in any unmitigated significant adverse impacts to transit and pedestrian conditions in the study area.

The Project, which would be completed by 2015, is expected to generate similar or fewer incremental levels of transit and pedestrian trips in the study area than what had been projected in the 2006 FEIS. The completion of other development projects in the future without the Project is also expected to progress at a slower pace than previously anticipated, resulting in fewer incremental transit and pedestrian trips in the No Build. A comparison of background transit and pedestrian levels indicates that overall activities in the area have not changed materially as well. Therefore, the future Build transit and pedestrian levels would be lower than or comparable to those analyzed in the 2006 FEIS and would result in a comparable number or fewer significant adverse impacts of similar or lesser magnitudes. As a result, the corresponding mitigation measures required would also be comparable to or less than those detailed in the 2006 FEIS.

## B. CHANGES IN BACKGROUND CONDITIONS

### FUTURE TRAVEL DEMAND PROJECTION COMPARISONS

To determine whether the Project has the potential to result in new significant adverse transit and pedestrian impacts, it is essential to first compare the travel demand projections described above in Section 14, "Traffic and Parking" and those presented in the 2006 FEIS for future conditions with and without the Project. As demonstrated below, the Project would yield substantially fewer incremental person trips than those projected in the 2006 FEIS. Furthermore, the level of development from other projects in West Midtown that are expected to move forward without the proposed Project are less than what was anticipated in the 2006 FEIS.

#### *FARLEY COMPLEX AND OFF-SITE DEVELOPMENT*

As detailed above and summarized in **Table 15-1**, the development of the Farley Complex in the No Action Alternative would generate 1,160, 7,344, 7,388, and 7,450 person trips during the weekday AM, midday, and PM, and Saturday midday peak hours, as compared to 2,544, 8,801, 5,175, and 12,959 person trips, as predicted in the 2006 FEIS analysis of the No Action condition, during the same time periods. For the Project, the Farley Complex and the new mixed-use off-site building would generate 1,606, 10,379, 9,291, and 10,188 person trips during the weekday AM, midday, and PM, and Saturday midday peak hours, as compared to 5,680, 21,592, 12,539, and 35,628 person trips, as predicted in the 2006 FEIS, during the same time periods.

**Table 15-1**  
**Person Trip Summary: The Project & 2006 FEIS**

Analysis Year		Peak Hour	Auto		Taxi		Subway		Bus		Railroad		Walk		Total		
			In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
The Project	2015 Future without the Proposed Project	AM	155	6	13	1	591	25	143	6	174	7	37	2	1,113	47	1,160
		MD	302	255	149	130	682	578	299	259	0	0	2,479	2,211	3,911	3,433	7,344
		PM	263	468	114	144	782	1,533	234	422	67	264	1,425	1,672	2,885	4,503	7,388
		SAT	337	311	154	141	752	693	308	282	0	0	2,339	2,133	3,890	3,560	7,450
	2015 Future with the Proposed Project	AM	18	30	49	150	130	324	44	37	0	0	358	466	599	1,007	1,606
		MD	351	299	243	219	805	689	393	342	0	0	3,691	3,347	5,483	4,896	10,379
		PM	310	326	296	222	1,143	1,092	336	338	56	64	2,512	2,596	4,653	4,638	9,291
		SAT	372	343	248	235	982	915	380	350	0	0	3,274	3,089	5,256	4,932	10,188
	2015 Increment	AM	-137	24	36	149	-461	299	-99	31	-174	-7	321	464	-514	960	446
		MD	49	44	94	89	123	111	94	83	0	0	1,212	1,136	1,572	1,463	3,035
		PM	47	-142	182	78	361	-441	102	-84	-11	-200	1,087	924	1,768	135	1,903
		SAT	35	32	94	94	230	222	72	68	0	0	935	956	1,366	1,372	2,738

Analysis Year		Peak Hour	Auto		Taxi		Subway		Bus		Railroad		Walk		Total		
			In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
2006 FEIS	2010 Future without the Proposed Project	AM	169	25	37	20	765	96	168	47	140	11	569	497	1,848	696	2,544
		MD	84	85	126	127	252	255	252	255	0	0	3,663	3,702	4,377	4,424	8,801
		PM	52	211	57	76	180	915	123	256	13	154	1,529	1,609	1,954	3,221	5,175
		SAT	129	129	194	193	387	386	387	386	0	0	5,384	5,384	6,481	6,478	12,959
	2010 Future with the Proposed Project	AM	174	78	576	174	741	352	276	132	80	8	1,565	1,524	3,412	2,268	5,680
		MD	350	220	846	353	1,234	682	758	591	81	2	8,339	8,136	11,608	9,984	21,592
		PM	283	124	778	206	1,140	442	517	315	87	3	4,483	4,161	7,288	5,251	12,539
		SAT	487	360	1,051	561	1,692	1,153	1,180	1,016	83	5	14,107	13,933	18,600	17,028	35,628
	2010 Increment	AM	5	53	539	154	-24	256	108	85	-60	-3	996	1,027	1,564	1,572	3,136
		MD	266	135	720	226	982	427	506	336	81	2	4,676	4,434	7,231	5,560	12,791
		PM	231	-87	721	130	960	-473	394	59	74	-151	2,954	2,552	5,334	2,030	7,364
		SAT	358	231	857	368	1,305	767	793	630	83	5	8,723	8,549	12,119	10,550	22,669

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The notable differences between the current and 2006 FEIS trip projections are largely attributed to changes in the transportation demand assumptions, as developed by the WRY FEIS working group (see Section 14, “Traffic and Parking” for a description of the WRY working group). In comparison with their respective No Action conditions, the Project would yield between 400 and 3,100 incremental peak hour person trips in 2015, as compared to the 3,100 to 22,700 incremental peak hour person trips projected in the 2006 FEIS for 2010.

### *OTHER PROJECTS IN WEST MIDTOWN*

As shown in Section 14, “Traffic and Parking,” there would be approximately 1.2 million fewer square feet of commercial office space expected to be completed in the Project area between 2008 and 2015 than anticipated in the 2006 FEIS for the 2005 to 2010 period. However, at the same time, there would be approximately 550,000 more square feet of hotel space, 220,000 more square feet of retail space, and 2,760 more residential dwelling units. Compared to the No Action analysis in the 2006 FEIS, the aggregate floor area of the expected development without the Project considered in this Technical Memorandum is comparable in total. Nonetheless, similar to what was concluded for vehicular traffic, the change in the mix of development would result in fewer total incremental person trips from those No Build projects than what was considered in the 2006 FEIS.

## TRANSIT

### *SUBWAY SERVICE*

Subway service in the study area includes the Seventh Avenue line (1,2,3) at 34th Street-Penn Station, the Eighth Avenue line (A,C,E) at 34th Street-Penn Station, and the Sixth Avenue line (B,D,F,V), Broadway line (N,Q,R,W), and the Port Authority Trans Hudson (PATH) trains at 34th Street-Herald Square. The 2006 FEIS analyzed 19 subway stairway locations serving the A/C/E subway lines at the 34th Street-Penn Station along Eighth Avenue, and eight subway stairway locations serving the 1/2/3 subway lines at the 34th Street-Penn Station along Seventh Avenue. Updated volume information was obtained from the recently certified WRY FEIS (2009). In comparison, the 2008 aggregate peak hour stairway volumes analyzed in the WRY FEIS are higher by approximately 7 percent over the 2005 stairway volumes analyzed in the 2006 FEIS. Taking into account the transit trips generated by completed development projects between 2005 and 2008, the remaining transit trip increase would be in line with the *CEQR* background growth of 0.5-percent per year. The 2006 FEIS also analyzed five subway control areas serving the A/C/E subway lines at the 34th Street-Penn Station along Eighth Avenue, and two subway control areas serving the 1/2/3 subway lines at the 34th Street-Penn Station along Seventh Avenue. Similarly, the comparison of the 2006 FEIS and the 2009 WRY FEIS aggregate baseline volumes at these subway control areas shows a moderate increase of approximately 8 percent between 2005 and 2008.

As shown in **Table 15-1**, the Project would result in -162, 234, -80, and 452 incremental subway trips (total in/out) during the weekday AM, midday, and PM, and Saturday midday peak hours. These trips, spread among various station elements at the above stations, which is comparable to what was done in the 2006 FEIS, would not warrant a detailed analysis per the criteria in the *CEQR Technical Manual*. The *CEQR Technical Manual* states that quantitative analyses could be warranted if a transit element is expected to incur 200 or more peak hour incremental trips resulting from a proposed action. Incremental transit trips during a peak hour at or below the *CEQR* threshold is considered imperceptible. The projected trips above, spread among various station elements at the two study area stations, which is comparable to what was done in the 2006 FEIS, would not result in any station element incurring more than the *CEQR* analysis

threshold of 200 transit trips. Therefore, a detailed analysis is not warranted, and the Project would not be expected to result in significant adverse subway impacts. Furthermore, the 2006 FEIS analyses, which considered substantially larger subway increments from the proposed Project (232, 1,409, 487, and 2,072 during the same time periods), concluded that no significant adverse impacts would result for the analyzed subway stairway and control area elements. With these lower Build incremental volumes coupled with a smaller No Action subway trip increase, the Project would not be expected to result in significant adverse subway impacts.

#### *BUS SERVICE*

There are various local and express bus routes serving the study area. The Project would result in -58, 177, 18, and 140 incremental bus trips (total in/out) during the weekday AM, midday, and PM, and Saturday peak hours. These trips, spread among numerous bus stops in the area, comparable to what was done in the 2006 FEIS, would not warrant a detailed analysis per criteria in the *CEQR Technical Manual*, and therefore would not be expected to result in significant adverse bus impacts. In comparison, the 2006 FEIS estimated the proposed Project's incremental bus trips to be substantially higher at 193, 842, 453, and 1,423 over the same time periods and also concluded that there would be no significant adverse impacts.

### **PEDESTRIANS**

#### *STREET-LEVEL PEDESTRIAN OPERATION*

The pedestrian study area is the same as the one studied in the 2006 FEIS (and shown on Figure 14-2 of the 2006 FEIS), which includes sidewalks, crosswalks, and corner reservoirs from West 30th to West 34th Streets between Sixth and Tenth Avenues and from West 34th to West 35th Streets between Seventh and Ninth Avenues. The 2006 FEIS analyzed physical changes to street-level pedestrian facilities, including project-related pedestrian improvements, proposed by the previous Farley Complex development program and proposed in the Hudson Yards FGEIS, as well as by other developments in the study area. Similar improvements, except for those stipulated in the Hudson Yards FGEIS, are expected to be in place for the Project. In addition, the 15 Penn Plaza project, which is currently undergoing environmental review under CEQR and would be constructed by 2014, is expected to result in the reconstruction and re-opening of the passageway under the south side of 33rd Street between Seventh and Sixth Avenues (sometimes referred to as the Gimbel's passageway) and related underground connections between Seventh and Sixth Avenues. The reconstructed passageway would accommodate pedestrian flows between Penn Station/the Seventh Avenue subway lines (1, 2, and 3) and the Sixth Avenue subway lines (B, D, F, N, Q, R, V, and W) and the PATH station and provide an alternative to pedestrians traveling along the 33rd Street corridor. The 15 Penn Plaza project would also improve several subway stairways and control areas serving the Seventh Avenue, Sixth Avenue, and Broadway subway lines, and the PATH station. The presence or absence of the Gimbel's passageway does not materially affect the assessment of the Project's pedestrian impacts.

In comparison, the 2008 aggregate peak hour pedestrian volumes analyzed in the WRY FEIS are higher by approximately 9 percent over the 2005 volumes analyzed in the 2006 FEIS for sidewalks, lower by approximately 28 percent for corner reservoirs, and lower by approximately 4 percent for crosswalks. Including the background growth of 0.5 percent per year outlined by the *CEQR Technical Manual* and additional pedestrian trips generated by other completed development projects over the three-year period within the study area, the amount of pedestrian growth realized

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between 2005 and 2008 for sidewalks is in line with typical volume increases. The corner and crosswalk volumes were lower in 2008 than they were in 2005.

The 2006 FEIS concluded that there would not be any significant adverse sidewalk impacts resulting from the Project to be completed in 2010. With comparable baseline conditions, fewer additional trips resulting from development projects in the future without the Project, and relatively lower incremental trip generation, the Project would also not be expected to result in significant adverse sidewalk impacts.

For corners and crosswalks, the 2006 FEIS, however, concluded that significant adverse impacts would occur at certain locations, all of which could be mitigated as described below.

### *Corner Reservoirs*

- Northeast corner of West 33rd Street and Ninth Avenue in the midday peak period – mitigated with a 5-foot widening of the east crosswalk at the northeast corner of West 33rd Street and Ninth Avenue to a width of 20 feet, and removal of all obstructions from the 20 feet of sidewalk adjacent to the east crosswalk.
- Northwest corner of West 33rd Street and Eighth Avenue in the AM, midday, PM, and Saturday peak periods – mitigated with a 10-foot widening of the west crosswalk at the northwest corner of West 33rd Street and Eighth Avenue to a width of 24 feet, and removal of all obstructions from the 24 feet of sidewalk adjacent to the west crosswalk.

### *Crosswalks*

- East crosswalk of West 34th Street and Eighth Avenue in the midday, PM, and Saturday peak periods – mitigated with a 4.5-foot widening to a width of 20 feet.
- West crosswalk of West 34th Street and Eighth Avenue in the PM peak period – mitigated with a 0.5-foot widening to a width of 16 feet.
- West crosswalk of West 33rd Street and Ninth Avenue in the midday and Saturday peak periods – mitigated with a 5-foot widening to a width of 20 feet.
- East crosswalk of West 33rd Street and Eighth Avenue in the AM, midday, PM, and Saturday peak periods – mitigated with a 2.3-foot widening to a width of 20 feet.
- South crosswalk at West 33rd Street and Eighth Avenue in the midday peak period – mitigated with a 3-foot widening to a width of 20 feet.
- West crosswalk of West 33rd Street and Eighth Avenue in the AM, PM, and Saturday peak periods – mitigated with a 10-foot widening to a width of 24 feet.
- North crosswalk of West 33rd Street and Seventh Avenue in the PM peak period – mitigated with a 7.5-foot widening to a width of 21.5 feet incorporating crosswalk width previously considered as Hudson Yards mitigation.
- South crosswalk of West 33rd Street and Seventh Avenue in the AM, midday, PM, and Saturday peak periods – mitigated with a 4-foot widening to a width of 20 feet.
- West crosswalk of West 33rd Street and Seventh Avenue in the Saturday peak period – mitigated with a 2-foot widening to a width of 20.5 feet.
- East crosswalk of West 31st Street and Ninth Avenue in the midday and Saturday peak periods – mitigated with a 3-foot widening to a width of 16 feet.
- East crosswalk of West 31st Street and Eighth Avenue in the Saturday peak period – mitigated with a 5.5-foot widening to a width of 20 feet.

- West crosswalk of West 31st Street and Eighth Avenue in the Saturday peak period – mitigated with a 0.5-foot widening to a width of 12 feet.
- North crosswalk of West 31st Street and Seventh Avenue mitigated to a width of 20 feet incorporating crosswalk width previously considered as Hudson Yards mitigation.

As summarized in **Table 15-1**, the No Build program and the Project program for the Farley Complex and the new mixed-use off-site building would result in substantially fewer person trips than those projected in the 2006 FEIS. Since both the 2008 baseline and future 2015 background pedestrian levels would also be lower or comparable to those analyzed in the 2006 FEIS, some of the significant adverse pedestrian impacts identified previously in the 2006 FEIS may no longer occur with the Project. For those impacts that would remain, they are likely to be lower in magnitude and require comparable or lesser mitigation measures. The mitigation measures set forth in the 2006 FEIS, described above, would be more than adequate to eliminate any significant adverse pedestrian impacts associated with the 2015 development program for the Project.

## **C. PROJECT DESIGN CHANGES**

### **PHASE 1**

Phase 1 of the Project would be constructed almost entirely in the train shed below grade and, therefore, would not be expected to have any adverse impacts on transit or pedestrians.

### **PHASE 2**

Phase 2 of the Project would be constructed by 2015. Importantly, the changes in pedestrian volumes noted above in the “Changes In Background Conditions” portion of this Section are related to changes in the No Build condition, not changes related to the Project. In either the Amtrak Station or Open Station Options, as noted above, and also in the 2006 FEIS, the Project is not expected to result in any significant adverse impacts. \*



**A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to air quality that were not previously identified in the 2006 FEIS.

As described in Section 14, “Traffic and Parking”, considerable changes to traffic conditions have occurred since completion of the 2006 FEIS, including changes in the roadway network, existing traffic volumes and traffic patterns, planned development projects, as well as changes in the No Action development for the Farley Complex. Therefore, the mobile source analysis of carbon monoxide (CO) and particulate matter (PM) was examined in this Technical Memorandum.

In addition, several changes in air quality standards have occurred since the FEIS was issued in 2006, and are discussed in Section B, below.

The 2006 FEIS concluded that there would be no significant adverse air quality impacts due to stationary sources. Changes in the Project and in background conditions since 2006 would not alter this conclusion. Accordingly, the discussion below focuses on the potential air quality impacts of mobile source emissions.

The air quality analysis indicates that the Project, like the Project as assessed in the FEIS, would not result in any significant adverse impacts and would not cause exceedances of the National Ambient Air Quality Standards. Further, as in 2006, the anticipated Congestion Mitigation and Air Quality (CMAQ) Improvement Program grants for the Project indicate that there would be some regional air quality benefits resulting from the proposed transportation investment and the transit-oriented development associated with the Project.

**B. CHANGES IN BACKGROUND CONDITIONS**

As discussed in Section 14, “Traffic and Parking,” the Project would be expected to produce better overall traffic conditions than concluded in the 2006 FEIS as a result of lower existing baseline traffic volumes (a condition that exists city-wide), a change in the mix of land uses for the No Build condition generating fewer auto trips on weekdays, and fewer additional trips generated by the Build scenario when taking into consideration the expected use of the Farley Complex in the No Build condition. As a result of these changes, the resulting air quality concentrations from mobile sources would be similar or lower than the concentrations reported in the 2006 FEIS.

In addition, the background CO and PM<sub>10</sub> concentrations used in this analysis have been updated to reflect the concentrations measured over the most recent three-year period at the nearest New York State Department of Environmental Conservation background monitoring station for which data are available. Background concentrations are added to modeling results to obtain total pollutant concentrations at a study site.

Since the Project is now anticipated to be fully complete in 2015, CO concentrations were determined for the 2015 analysis year. In addition, with the proposed traffic modifications, the maximum predicted number of vehicle trips generated by the Project no longer exceeds the 2001 CEQR Technical Manual threshold of 75 vehicles per peak hour for three of the four analysis sites assessed in the 2006 FEIS<sup>1</sup>. Therefore, a quantified assessment of on-street mobile source CO emissions at these three sites was not warranted.

For particulate matter, Ninth Avenue and West 31st Street was selected for microscale analysis, as was previously selected in the 2006 FEIS. This location is still projected to have the highest overall Project-generated truck traffic with the proposed traffic modifications and, therefore, provides a reasonable basis for assessing the effects of the Project on levels of PM<sub>2.5</sub> and PM<sub>10</sub>.

The weekday AM (8 to 9 AM), weekday Midday (12 to 1 PM) and the weekday PM (5 to 6 PM) peak periods were selected for the mobile source analysis in this Technical Memorandum to represent the reasonable worst-case condition when considering total traffic volumes, Level of Service (LOS), and project-generated traffic at the intersections selected for analysis. The remainder of the modeling analysis used the same methodology as described in the 2006 FEIS.

In addition, EPA has made the following changes to the National Ambient Air Quality Standards (NAAQS) since the FEIS was issued in 2006:

- EPA has revised the NAAQS for PM, effective December 18, 2006. The revision included lowering the level of the 24-hour PM<sub>2.5</sub> standard from 65 µg/m<sup>3</sup> to 35 µg/m<sup>3</sup> and retaining the level of the annual standard at 15 µg/m<sup>3</sup>. The PM<sub>10</sub> 24-hour average standard was retained and the annual average PM<sub>10</sub> standard was revoked. These changes do not affect the nonattainment status of New York City.
- EPA has revised the 8-hour ozone standard, lowering it from 0.08 to 0.075 parts per million (ppm), effective May 2008. On January 6, 2010, EPA proposed a further reduction in the 2008 ozone NAAQS, lowering the primary NAAQS to within the range of 0.060-0.070 ppm. EPA is also proposing a secondary standard, measured as a cumulative concentration within the range of 7-15 ppm-hours aimed mainly at protecting sensitive vegetation. EPA intends to complete this reconsideration of the 2008 ozone NAAQS by August 31, 2010. These changes do not affect the nonattainment status of New York City.
- EPA lowered the primary and secondary standards for lead to 0.15 µg/m<sup>3</sup>, effective January 12, 2009. EPA revised the averaging time to a rolling 3-month average and the form of the standard to not-to-exceed across a 3-year span. This change does not affect the attainment status of New York City.
- On June 3, 2010 EPA announced a new 1-hour average sulfur dioxide (SO<sub>2</sub>) standard of 0.075 ppm, replacing the current 24-hour and annual primary standards. The statistical form is the 3-year average of the 4th highest daily maximum 1-hour average concentration in a year (the 4th highest daily maximum corresponds approximately to 99th percentile for a year).
- EPA established a new 1-hour average NO<sub>2</sub> standard of 0.100 ppm, effective April 12, 2010, in addition to the current annual standard. The statistical form is the 3-year average of the

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<sup>1</sup> The New York City Office of Environmental Coordination (OEC) has issued an online addendum to the CEQR Technical Manual that includes a revised threshold of 140 vehicles per hour at an intersection.

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98th percentile of daily maximum 1-hour average concentration in a year. The existing monitoring data indicates background concentrations that are below the new standard. However, it is unclear at this time what the City's future attainment status will be due to the need for additional near road monitoring required for the new standard. It is likely that New York City will be designated as "unclassifiable" at first (January 2012), and then classified once three years of monitoring data are available (2016 or 2017).

Regarding the new 1-hour average NO<sub>2</sub> standard, there is uncertainty at this time as to background levels, specifically for near-road conditions which are not yet monitored. No specific guidance exists at this time describing how this standard should be evaluated for mobile sources and for evaluating the ratio of NO<sub>2</sub>:NO<sub>x</sub>. Note that this is a change in standards—not a change in the project; no increase in emissions would result from the project changes.

Region wide, the project is projected to reduce NO<sub>x</sub> emissions (including NO<sub>2</sub>) due to the increase in the use of passenger rail and the ensuing reduction in on-road vehicles. Overall, NYSDEC is projecting lower future NO<sub>x</sub> (including NO<sub>2</sub>) concentrations due to existing plans for reducing emissions aimed at attaining the ozone standards. Overall, the project may result in some minor increases in local NO<sub>2</sub> concentrations, specifically near intersections where small increases in traffic volumes may occur, and HVAC emissions, which were screened out in 2006 FEIS as insignificant for the annual NO<sub>2</sub> standard (those emissions were 13 percent of the screening threshold). Some increments would occur due to construction engines as well in the immediate vicinity of the site.

New York City is currently in attainment of the existing SO<sub>2</sub> primary and secondary standards. Based on the recent monitoring data, SO<sub>2</sub> concentrations in all areas of the state are below the new 1-hour standard. Emissions of SO<sub>2</sub> from mobile sources are generally considered to be negligible; therefore, the proposed traffic modifications would not affect 1-hour concentrations of SO<sub>2</sub> in the vicinity of the project.

### EXISTING CONDITIONS

Receptors were placed at multiple sidewalk locations next to the intersection under analysis. The receptor with the highest predicted CO concentrations was used to represent this intersection site for the existing conditions. CO concentrations were calculated for each receptor location for each peak period specified above.

**Table 16-1** shows the maximum modeled existing CO 8-hour average concentrations at the selected intersection of Eighth Avenue and West 33rd Street. At all time periods, the maximum predicted 8-hour average concentrations are lower than the 9 parts per million (ppm) NAAQS.

**Table 16-1**  
**Existing Maximum Projected 8-Hour Average**  
**Carbon Monoxide Concentrations (ppm)**

Carbon Monoxide Concentrations (ppm)			
2006 FEIS Site	Location	Time Period	Concentration
4	Eighth Avenue and West 33rd Street	Weekday AM	2.8
		Weekday MD	3.0
		Weekday PM	2.9
<b>Notes:</b> 8-hour CO standard is 9 ppm. An adjusted ambient background concentration of 1.7 ppm is included in the existing values presented above.			

**NO BUILD CONDITION***CARBON MONOXIDE*

CO concentrations without the Project were determined for the 2015 analysis year using the methodology described in the 2006 FEIS. **Table 16-2** presents the maximum predicted 8-hour average CO No Build concentrations at the selected analysis intersection in the Project study area. The values shown are the highest predicted concentrations.

**Table 16-2**  
**2015 Maximum Predicted 8-Hour Average**  
**Carbon Monoxide No Build Concentrations (ppm)**

2006 FEIS Site	Location	Time Period	Concentration
4	Eighth Avenue and West 33rd Street	Weekday AM	2.7
		Weekday MD	2.9
		Weekday PM	2.9
<b>Notes:</b> 8-hour CO standard is 9 ppm. An adjusted ambient background concentration of 1.7 ppm is included in the No Build values presented above.			

As indicated in the table, the No Build concentrations are lower than the corresponding 9 ppm NAAQS.

*PM<sub>10</sub>*

PM<sub>10</sub> concentrations without the Project were determined for the 2015 analysis year using the methodology described in the 2006 FEIS. **Table 16-3** presents the future maximum predicted 24-hour average PM<sub>10</sub> concentration in the No Action Alternative at the selected analysis intersection in the Project study area: Ninth Avenue and West 31st Street. The values shown are the highest predicted concentrations for the receptor location. As indicated in the table, the No Build concentration is lower than the 150 µg/m<sup>3</sup> NAAQS.

**Table 16-3**  
**2015 Maximum Predicted 24-hour Average**  
**PM<sub>10</sub> No Build Concentration (µg/m<sup>3</sup>)**

2006 FEIS Site	Location	Concentration
3	Ninth Avenue and West 31st Street	67.1
<b>Note:</b> 24-hour standard 150 µg/m <sup>3</sup> . Includes background concentration of 60 µg/m <sup>3</sup> .		

**FUTURE WITH THE PROJECT***CARBON MONOXIDE*

CO concentrations with the Project were determined for the 2015 analysis year using the methodology described in the 2006 FEIS. **Table 16-4** presents the maximum predicted 8-hour average CO Build concentrations at the selected analysis intersection. The values shown are the highest predicted concentration for each of the time periods analyzed. Also shown in the table is the *de minimis* criteria used to determine the significance of the incremental increase in CO

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concentrations that would result from the Project. The *de minimis* criteria are derived using procedures outlined in the *CEQR Technical Manual* that set a significance threshold keyed to the change in 8-hour average CO concentrations due to the Project.

The results indicate that with the Project there would be no potentially significant adverse mobile source air quality impacts (i.e., *de minimis* criteria were not exceeded). In addition, in the future without and the future with the Project, maximum predicted ambient CO concentrations at the intersection analyzed would be lower than the corresponding NAAQS.

**Table 16-4**  
**2015 Maximum Predicted 8-Hour Average**  
**Carbon Monoxide Build Concentrations (ppm)**

Carbon Monoxide Build Concentrations (ppm)				
2006 FEIS Site	Location	Time Period	Concentration <sup>a</sup>	Not-To-Exceed <i>De minimis</i> Criteria <sup>b</sup>
4	Eighth Avenue and West 33rd Street	Weekday AM	3.2	5.9
		Weekday MD	3.3	6.0
		Weekday PM	3.3	6.0
<b>Notes:</b>				
<sup>a</sup> An adjusted ambient background concentration of 1.7ppm is included in the Project build values presented above.				
<sup>b</sup> The not-to-exceed value is derived by adding the minimum acceptable increase of CO concentrations (set forth in the <i>CEQR Technical Manual</i> ) to the No Build concentration.				
8-hour CO standard is 9 ppm.				

### *PM*<sub>10</sub>

PM<sub>10</sub> concentrations with the Project were determined for the 2015 analysis year using the methodology described in the 2006 FEIS. **Table 16-5** presents the future maximum predicted 24-hour average concentrations at the selected analysis intersection. The value shown is the highest predicted concentration for the receptor locations analyzed. As indicated in the table, the Build concentrations are lower than the 150 µg/m<sup>3</sup> NAAQS.

**Table 16-5**  
**2015 Maximum Predicted PM<sub>10</sub> Build Concentrations (µg/m<sup>3</sup>)**

2006 FEIS Site	Location	Concentration
3	Ninth Avenue and West 31st Street	67.2
<b>Note:</b> 24-hour standard 150 µg/m <sup>3</sup> . Includes background concentration of 60 µg/m <sup>3</sup> .		

### *PM*<sub>2.5</sub>

PM<sub>2.5</sub> concentrations with and without the Project were determined for the 2015 analysis year using the methodology described in the 2006 FEIS. The results of this analysis are presented in **Table 16-6** for the 24-hour and annual time periods. As indicated in the table, the maximum predicted 24-hour and annual average increases in PM<sub>2.5</sub> concentrations are lower than the corresponding interim guidance levels. Therefore, the Project is not considered to have significant PM<sub>2.5</sub> impacts, and no additional modeling is required for this pollutant.

**Table 16-6**

**2015 Maximum Predicted PM<sub>2.5</sub> Concentrations Increments (µg/m<sup>3</sup>)**

2006 FEIS Site	Location	Neighborhood Scale Annual Increment	Local 24-Hour Increment
3	Ninth Avenue and West 31st Street	0.007	0.02
<b>Note:</b> <b>PM<sub>2.5</sub> Interim Guidance Criteria:</b> Annual Average (Neighborhood Scale)—0.1 µg/m <sup>3</sup> 24-Hour (Localized)—2-5.0 µg/m <sup>3</sup>			

### C. PROJECT DESIGN CHANGES

Changes to the Project design in Phase 1 or Phase 2, under the Amtrak Station Option or the Open Station Option, would not affect the results of the 2006 FEIS air quality conclusions. \*

## A. INTRODUCTION

This section serves to update previous noise analyses performed for the Project based on updated traffic conditions. The first of these analyses was prepared for the 2006 FEIS, which analyzed the potential impacts of the Project using CEQR noise impact criteria and the 2006 version of the traffic data, and found no significant adverse impacts. In addition, a NEPA EA expected to be finalized in 2010 examined noise from the Project using the 2006 traffic data and procedures consistent with practices of the Federal Transit Administration (FTA), which are followed by the Federal Railroad Administration (FRA). The analysis from that EA also found no significant adverse impacts.

As in 2006, stationary source noise would be negligible compared to mobile source noise, and would not affect the results of this analysis. Accordingly, the discussion below focuses on mobile source noise.

The revised analysis using the latest traffic data and both analysis methodologies concludes that Project-generated traffic would not be expected to produce significant increases in noise levels at any location.

## B. CHANGES IN BACKGROUND CONDITIONS

In the original 2006 FEIS, the CEQR analysis methodology and impact criteria were used to determine potential impacts. The *CEQR Technical Manual* uses the following criteria to determine whether a proposed project would result in a significant adverse noise impact. The impact assessments compare the project's Build condition  $L_{eq(1)}$  noise levels to those calculated for the No Build condition, for receptors potentially affected by the proposed actions. If the No Build levels are less than 60 dBA  $L_{eq(1)}$  and the analysis period is not a nighttime period, the threshold for a significant impact would be an increase of at least 5 dBA  $L_{eq(1)}$ . For the 5 dBA threshold to be valid, the resultant Build condition noise level would have to be equal to or less than 65 dBA. If the No Build noise level is equal to or greater than 62 dBA  $L_{eq(1)}$ , or if the analysis period is a nighttime period (defined in the CEQR standards as being between 10 PM and 7 AM), the incremental significant impact threshold would be 3 dBA  $L_{eq(1)}$ . (If the No Build noise level is 61 dBA  $L_{eq(1)}$ , the maximum incremental increase would be 4 dBA, since an increase higher than this would result in a noise level higher than the 65 dBA  $L_{eq(1)}$  threshold.)

**Figure 17-1** shows the locations of the noise receptors examined in this analysis. **Table 17-1** shows the No Build and Build noise levels with the Project at each of the noise receptor locations for each of the four analysis periods, as calculated using the updated existing and No-Build traffic conditions.

**Table 17-1**  
**Revised 2015 No Build and Build Noise Levels (dBA)**

Site	Day	Time	2015 No Build $L_{eq(1)}$	2015 Build $L_{eq(1)}$	Change
1	Weekday	AM	74.0	74.6	0.6
	Weekday	MD	70.9	71.4	0.5
	Weekday	PM	70.3	70.6	0.3
	Weekend	MD	64.1	64.1	0.0
2	Weekday	AM	76.7	76.8	0.1
	Weekday	MD	74.3	74.4	0.1
	Weekday	PM	74.4	74.5	0.1
	Weekend	MD	69.9	69.8	-0.1
3	Weekday	AM	75.8	75.9	0.1
	Weekday	MD	72.6	72.6	0.0
	Weekday	PM	72.3	72.1	-0.2
	Weekend	MD	65.5	65.5	0.0
4	Weekday	AM	69.5	69.6	0.1
	Weekday	MD	68.4	68.5	0.2
	Weekday	PM	69.0	69.0	0.1
	Weekend	MD	65.1	65.0	-0.1
5	Weekday	AM	76.3	76.3	0.0
	Weekday	MD	76.9	76.9	0.0
	Weekday	PM	82.8	82.8	0.0
	Weekend	MD	76.9	76.9	0.0
6	Weekday	AM	72.1	72.1	0.1
	Weekday	MD	69.7	69.6	0.0
	Weekday	PM	70.7	70.6	-0.1
	Weekend	MD	70.1	70.0	-0.1
7	Weekday	AM	72.2	72.3	0.1
	Weekday	MD	73.2	73.1	-0.1
	Weekday	PM	71.5	71.6	0.0
	Weekend	MD	69.2	69.1	-0.1
8	Weekday	AM	68.4	69.6	1.2
	Weekday	MD	68.0	69.1	1.1
	Weekday	PM	69.6	70.5	0.9
	Weekend	MD	65.5	66.0	0.5
9	Weekday	AM	71.9	71.8	-0.1
	Weekday	MD	71.4	71.4	0.0
	Weekday	PM	72.1	72.1	0.0
	Weekend	MD	70.2	70.1	-0.1
10	Weekday	AM	69.7	69.3	-0.4
	Weekday	MD	69.6	69.6	0.0
	Weekday	PM	70.3	70.2	-0.1
	Weekend	MD	67.4	67.4	0.0
11	Weekday	AM	73.1	73.2	0.2
	Weekday	MD	74.0	74.1	0.1
	Weekday	PM	73.6	73.8	0.1
	Weekend	MD	72.5	72.5	0.0
12	Weekday	AM	75.3	75.3	0.0
	Weekday	MD	72.5	72.5	0.0
	Weekday	PM	75.0	75.0	0.0
	Weekend	MD	69.0	69.0	0.0



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The maximum increase over No-Build noise levels that would occur as a result of Project-generated traffic would be 1.2 dBA. The Project-generated noise level increases would be barely perceptible and insignificant according to CEQR criteria.

### UPDATED 2010 ANALYSIS

In the 2010 NEPA EA, the FTA noise impact analysis methodology and criteria were used to determine potential impacts. These standards are typically used for FTA and FRA projects, as well as other projects where the primary noise sources are transit-related.

In May 2006, FTA issued its report, *Transit Noise and Vibration Impact Assessment*, as a guideline for the evaluation of noise and vibration levels resulting from mass transit projects, and the assessment of impacts that result. The noise analysis methodology in the FTA report determines operational noise impacts that result from mass transit projects based on peak-hour  $L_{eq(1)}$  and 24-hour  $L_{dn}$  noise levels, depending on the land use category of the affected areas near the mass transit project. As described in **Table 17-2**, categories 1 and 3, which include land uses that are noise-sensitive, but where people do not sleep, require examination of a 1-hour  $L_{eq}$  for the noisiest peak hour. Category 2, which includes residences, hospitals, and other locations where nighttime sensitivity to noise is very important, use of  $L_{dn}$  is required.

**Table 17-2**  
**FTA's Land Use Category and Metrics**  
**for Transit Noise Impact Criteria**

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor $L_{eq(h)}$	Tracts of land in which quiet is an essential element in the intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as National Historic Landmarks with significant outdoor use.
2	Outdoor $L_{dn(h)}$	Residences and buildings where people normally sleep. This category includes homes, hospitals, and hotels, where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor $L_{eq(h)}$	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Buildings with interior spaces where quiet is important—such as medical offices, conference rooms, recording studios, and concert halls—fall into this category. Places for meditation or study associated with cemeteries, monuments, museums. Certain historical sites, parks, and recreational facilities are also included.
<b>Note:</b> $L_{eq}$ for the noisiest hour of transit-related activity during hours of noise sensitivity. <b>Source:</b> <i>Transit Noise and Vibration Impact Assessment</i> , FTA, May 2006.		

Using these noise descriptors, the FTA impact criteria are keyed to the noise level generated by the Project (called “project noise exposure”) in locations of varying ambient noise levels. As shown in **Figure 17-2**, two types of impacts are defined for each land use category, depending on existing ambient noise levels. Thus, where existing noise levels are 40 dBA, for land use categories 1 and 2, the respective  $L_{eq}$  and  $L_{dn}$  noise exposures from the Project would create impacts if they were above approximately 50 dBA, and would create severe impacts if they were above approximately 55 dBA. For category 3, a project noise exposure level above approximately 55 dBA would be considered an impact, and above approximately 60 dBA would be considered a severe impact. The difference between “severe impact” and “impact” is that the former denotes a change in noise level that a significant percentage of people would find

annoying while the latter is indicative of a change in noise level noticeable to most people but not necessarily sufficient to result in strong adverse reactions from the community.

**Table 17-3** shows the Project noise exposure level at each receptor site as caused by the Project for each FTA Land Use category. This updated FTA analysis does not include weekend analysis, because updated weekend traffic data was available only for the Saturday Midday time period. Project-generated noise reflected on the table below is considered representative of the noise impacts of Project-related traffic in each of the analysis periods.

**Table 17-3**  
**Revised Noise Levels with the Project (in dBA)**

Receptor Site	FTA Land Use Category / Noise Descriptor <sup>1</sup>	Day	Existing Ambient Noise Level	FTA Allowable Project Noise Exposure Level		Predicted Project Noise Exposure Level <sup>2</sup>	Result	Build Noise Level <sup>3</sup>	Change
				Moderate Impact	Severe Impact				
1	Cat 2/L <sub>dn</sub>	Weekday	70.8	65.0	70.1	59.9	No Impact	71.1	0.3
2	Cat 3/L <sub>eq</sub>	Weekday	76.0	70.0	79.0	59.1	No Impact	76.1	0.1
3	Cat 3/L <sub>eq</sub>	Weekday	75.2	70.0	78.4	57.4	No Impact	75.3	0.1
4	Cat 2/L <sub>dn</sub>	Weekday	69.9	64.3	69.4	57.6	No Impact	70.1	0.2
5	Cat 3/L <sub>eq</sub>	Weekday	76.1	70.0	79.1	50.7	No Impact	76.1	0.0
6	Cat 2/L <sub>dn</sub>	Weekday	68.5	63.2	68.5	59.1	No Impact	69.0	0.5
7	Cat 3/L <sub>eq</sub>	Weekday	71.7	70.0	75.7	58.2	No Impact	71.9	0.2
8	Cat 3/L <sub>eq</sub>	Weekday	66.9	67.1	72.4	54.1	No Impact	67.1	0.2
9	Cat 2/L <sub>dn</sub>	Weekday	77.6	65.0	75.0	61.4	No Impact	77.7	0.1
10	Cat 3/L <sub>eq</sub>	Weekday	68.4	68.2	73.4	55.4	No Impact	68.6	0.2
11	Cat 3/L <sub>eq</sub>	Weekday	72.5	70.0	76.3	55.7	No Impact	72.6	0.1
12	Cat 2/L <sub>dn</sub>	Weekday	77.9	65.0	75.0	61.0	No Impact	78.0	0.1

**Notes:** 1 Definition of land use categories and noise descriptor based on FTA Manual, see Table 17-2.  
2 Total project-generated noise level.  
3 Based on logarithmic addition of existing ambient and predicted project noise exposure levels.

The updated analysis predicts that there would be no moderate or severe impacts at any of the receptor sites according to FTA criteria.

## CONCLUSION

The updated analysis based on the revised existing and No Build conditions finds no significant adverse noise impacts, the same conclusion reached in the 2006 FEIS analysis.

## B. PROJECT DESIGN CHANGES

In either Phase 1 or Phase 2 under the Amtrak Station Option or Open Station Option, no changes to the Project design would affect the results of the 2006 FEIS noise conclusions. \*

**A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts associated with construction of the Project that were not identified in the 2006 FEIS. The regulatory context and methodology for this analysis are the same as described in the 2006 FEIS.

Construction activities for the proposed Project would primarily be confined to the Farley Complex and largely in the building interior or underground on the block between Eighth and Ninth Avenues and West 31st and West 33rd Streets. It would also include an area under Eighth Avenue for reconstruction of the 33rd Street Connector. As a result, the Project will require close construction coordination with MSDC and the operating railroads and other key stakeholders to safely and efficiently accommodate construction of the Project with railroad operations in and around Penn Station, including the potential to bring Metro-North Hudson Line Service to the Penn Station Complex (although that project is expected to be implemented after the proposed Project). MSDC will coordinate with the operating railroads to establish a comprehensive construction management plan, including the coordination of construction schedules, and overall access to, and circulation within, the Penn Station Complex.

The Development Transfer Site would involve construction activities on the western portion of the One Penn Plaza Block between West 33rd and West 34th Streets. This will require MSDC coordination with NJT's ARC project, which will have connections between its West 34th Street station and Penn Station and new street entrances on West 34th Street.

**B. CHANGES IN BACKGROUND CONDITIONS**

The changes in background conditions, as described in Section 2, "Analytical Framework," do not substantially affect the conclusions of the 2006 FEIS related to potential construction impacts. With the exception of concurrent construction activities that will be ongoing with the ARC project, the change in the build analysis year from 2010 to 2015 is not expected to significantly change the context and setting in which Project construction would take place. While the specific location and timing of background projects has changed since the 2006 FEIS, the construction of Moynihan Station and the non-station portions of the Project would still be required to be undertaken in a busy urban area concurrently with several other construction projects in the general Project area.

Construction activities for the Project would take place concurrently with the construction of the ARC project. However, potential impacts associated with lane closures and staging areas required for these two projects would have minimal overlap. Whereas the Farley Complex construction would involve partial or temporary closures along West 31st and West 33rd Streets between Eighth and Ninth Avenues, much of the construction work for the ARC project (as presented in the ARC FEIS) will occur in a tunnel and caverns under Manhattan and a majority

of the staging for the Manhattan construction efforts will be to the west of the Farley Complex at Twelfth Avenue and West 28th Street. More limited site-specific construction activities related to the ARC project will be conducted along West 34th Street (for an entrance and ventilation facility) and on West 33rd Street at Sixth Avenue to the east of the Farley Complex.

Construction of both the ARC project and the Development Transfer Site building would involve lane closures on West 33rd Street east of Eighth Avenue and potential temporary closures along Eighth Avenue. The ARC project will also have some construction activities at and below West 34th Street. The combined construction efforts would be coordinated between NJT and MSDC to the extent practicable, since there may be common or overlapping construction elements within or under the Development Transfer Site. As the expected construction schedule for the demolition, foundation, and core and shell work for the Development Transfer Site building would be about 2 to 3 years, construction activities would overlap with the ARC project on the Development Transfer Site for a relatively short-term period.

With regard to construction truck traffic, the 2006 FEIS projected up to 50 truck deliveries a day could occur during peak construction. These deliveries would be distributed throughout the day with more occurring during the early morning hours (approximately 15 deliveries taking place prior to the morning commuter peak hour and fewer deliveries per hour thereafter.) The deliveries would also be dispersed onto various travel routes and block-fronts surrounding the Farley Complex and the Development Transfer Site. Within the immediate area, construction of the ARC project would generate up to 5 to 7 truck deliveries during peak hours on West 33rd Street, according to the Access to the Region's Core FEIS, October 2008. The greatest overlap in truck deliveries for the two projects is expected to occur here during the early morning hours when background traffic would be light. Overall, construction truck activities for the two projects throughout the day would represent a very small percentage of background traffic levels, such that a perceptible increase in truck traffic or the potential for increased congestion due to construction truck traffic would be unlikely.

## **C. PROJECT DESIGN CHANGES**

The currently proposed Moynihan Station varies from that analyzed in the 2006 FEIS primarily based on changes to the proposed station, most notably the proposed Amtrak move to the Farley Building, the reactivation of the former mail platform as Platform 12, and the expansion, circulation refinement, and access improvements in the West End Concourse and the 33rd Street connector. The actual development program in terms of the allocation of space to retail, office, train station, and the mixed-use Development Transfer Site remain the same as with the 2006 FEIS.

### **FARLEY COMPLEX-PHASE 1**

The first phase of the construction effort is basically the same as with the Project assessed in the 2006 FEIS, namely, the underground construction efforts to improve and expand the West End Concourse and the 33rd Street connector. Revised construction sequencing and timing estimates provided by MSDC's consulting engineers expect the effort to be similar in type and duration to the effort analyzed in the 2006 FEIS. Based on the largely underground construction effort, the temporary nature of the disturbance, and the utilization of best management construction techniques as identified in the 2006 FEIS, the Phase 1 construction effort, like the overall

## **Moynihan Station Development Project Technical Memorandum**

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construction effort set forth in the 2006 FEIS, would not result in significant adverse impacts from construction activities.

The Phase 1 construction effort would be coordinated with the operating railroads and would not result in any planned alterations to train schedules or train support services, such as bathrooms, red cap service, and ticket sales facilities.

### **FARLEY COMPLEX-PHASE 2**

The remainder of the construction effort, including completion of Moynihan Station, the mixed-use development in the Western Annex, and the Development Transfer Site, would be completed basically with the same phasing and sequencing as set forth in the 2006 FEIS. This basic construction plan is applicable to either the Amtrak or Open Station Options.

The Phase 2 construction effort would be similar in type and duration to the effort analyzed in the 2006 FEIS. The most notable differences between the current Project and the 2006 plan that could affect construction activities are reactivation of the mail platform as Platform 12 and the modifications to the station build-out and a reorganization of spaces in the Western Annex under the Amtrak Station Option. While both the Amtrak and the Open Station Options each have new emergency egress in the westernmost portion of the platform area, the Amtrak Station Option could expand this area to also be a functional baggage handling corridor. The engineering review of the revised plans indicates that the work necessary to make Platform 12 function and to build the new baggage corridor would be additional elements of the underground construction efforts but would occur in tandem with other below-grade construction efforts that would be necessary for the other station elements, and would not lengthen the timing of this construction phase.

The Phase 2 construction effort would be coordinated with the railroad operating railroads and would not result in any planned alterations to train schedules or train support services, such as bathrooms, red cap service, and ticket sales facilities, or to use of the station's Eighth Avenue entrances through the Farley Building that would be constructed under Phase 1.

### **CONCLUSIONS**

In summary, like the assessment of potential construction impacts in the 2006 FEIS, it is assumed that throughout construction, USPS retail uses and Penn Station operations would continue in the Farley Building. Some USPS administrative functions would also remain, but these functions would be relocated within the Farley Complex. NJT, LIRR, and Amtrak would continue their operations uninterrupted within Penn Station. In addition, the Eighth Avenue subway lines would remain in operation throughout the construction period. With the implementation of applicable controls and measures, as described in the 2006 FEIS, no significant adverse impacts in the area of historic resources, hazardous materials, transportation, air quality, and noise are expected during the construction period. In connection with the construction of the Project, MSDC and ESDC will:

- Prepare a plan, in consultation with MTA and its constituent agencies, Amtrak, and NJT that would include measures to minimize, to the extent practicable, temporary disruptions to transit and railroad operations;
- Coordinate construction activities with other large-scale transportation projects under construction in the vicinity of the Project, including the ARC project;
- Require the development of and adherence to measures designed to avoid impacts on the exterior and interior portions of the Farley Complex to be preserved as part of the Project;

- Require the development of and adherence to measures designed to avoid damage to historic resources that are located within 90 feet of proposed construction activities (namely, the former J.C. Penney Company building at 331-343 West 33rd Street and former William F. Sloan Memorial YMCA at 360 West 34th Street);
- Require that construction activities be performed in accordance with the substantive requirements of the New York City Air Pollution Control Code applicable to the control of fugitive dust emissions;
- Require that construction activities with the potential to generate dust be conducted using measures that will include wetting of exposed areas and the utilization of dust covers on trucks, as needed to minimize dust emissions;
- Require the implementation of measures to minimize vehicle and equipment-related emissions, including limiting unnecessary engine idling, both on-site and on-street, to three minutes; using electrical grid power to power electric engines in lieu of diesel engines where practicable; minimizing the use of generators to the extent practicable; using ultra low sulfur diesel fuel exclusively for all nonroad diesel powered engines; using exclusively nonroad engines certified by EPA as Tier 2 or higher; and using diesel engines equipped with diesel particle filters or equivalently effective controls for all nonroad diesel engine applications with a power output rating of 50 horsepower or greater;
- To the extent necessary, require that additional environmental investigations be conducted to determine the potential for contamination at locations where excavation or soil disturbance will take place;
- Where contamination has been or is identified, require that appropriate measures be taken to remove or otherwise address such conditions in accordance with the regulations, practices and protocols identified in this Technical Memorandum, including, as appropriate, preparation of and adherence to proper Health and Safety Plans, Soil Management Plans, Soil Gas Management Plans and Groundwater Management Plans;
- Require that ACM, lead based paint, PCB-containing equipment, and electrical switching devices containing mercury are properly removed, handled, disposed of and otherwise managed in accordance with the regulations, practices and protocols described in this Technical Memorandum, including, as appropriate, preparation and adherence to proper ACM Material Management Plans, Lead Based Paint Management Plans and PCB-Containing Equipment Management Plans;
- Require development of and adherence to a plan, prepared in coordination with the Mayor's Office of Construction, to minimize disruptions to traffic and pedestrian flows during the construction period;
- Require adherence to standard practices for the protection of pedestrians during construction, including but not limited to providing covered temporary pedestrian walkways, as appropriate; and
- Require compliance with the substantive provisions of the New York City Noise Control Code relating to construction-related noise and U.S. EPA noise emission standards for construction equipment, and the employment of best management practices, such as low-impact machines and ground improvement to limit vibration. \*

**A. INTRODUCTION**

This section assesses whether changes in the Project and in background conditions since 2006 would result in any new or different significant adverse impacts to public health that were not previously identified in the 2006 FEIS. The regulatory context and methodology for this analysis are the same as described in the 2006 FEIS. The key technical analyses of this Technical Memorandum that identify potential impacts related to public health concerns are Hazardous Materials, Infrastructure and Solid Waste, Air Quality, Noise, and Construction.

**B. CHANGES IN BACKGROUND CONDITIONS AND PROJECT DESIGN CHANGES**

In summary, the Project, like the project assessed in the FEIS, would not result in any significant adverse impacts to public health.

The hazardous materials analysis of this Technical Memorandum concludes—like the hazardous materials analysis in the 2006 FEIS—that with the implementation of appropriate measures, including pre-construction surveys and Health and Safety Plans during demolition and construction, no significant adverse impacts related to hazardous materials would be expected to occur as a result of the Project. Although construction of the Project may not remove all hazardous materials, such as asbestos and lead paint, from the Farley Complex and the subsurface, public health would be protected with the continued implementation of appropriate procedures to properly manage hazardous materials.

In terms of potential solid waste disposal issues creating a public health hazard, the proposed Project has basically the same development program with the same sanitation demand as assessed in the 2006 FEIS, which would conform to standards appropriate for commercial and residential facilities in New York City, including participation in mandatory recycling and waste reduction programs per the SWMP. Overall, no impacts on solid waste management are expected with the Project and no public health concerns would be generated, as was concluded in the 2006 FEIS.

The air quality analysis of this Technical Memorandum indicates that the Project, like the Project as assessed in the FEIS, would not result in any significant adverse impacts and would not cause exceedances of the National Ambient Air Quality Standards. As a result, there would be no significant adverse impact on public health, as was concluded in the 2006 FEIS.

The noise analysis of this Technical Memorandum indicates that no adverse noise impacts are anticipated with the Project, and no noise-related adverse health effects on the general public would be generated, as was concluded in the 2006 FEIS.

In terms of construction-related impacts, this Technical Memorandum indicates that no significant adverse impacts on air quality would be expected as a result of construction activities. With no large-scale or open-air demolition of buildings as part of the Project, particulate emissions would be minimal and there would be no significant adverse impact on public health, as was concluded in the 2006 FEIS. \*

**Section 20:****Unavoidable Significant Adverse Impacts**

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Like the project assessed in the FEIS, the Project would not result in any unavoidable significant adverse impacts. The potential traffic and pedestrian impacts would all be mitigated, as was concluded in the 2006 FEIS. To ensure that the final design of the Project is compatible with the historic character of the Farley Complex and to ensure that currently unresolved details of the Project design would not have adverse impacts on the Farley Complex, the amended Programmatic Agreement will set forth a framework for ongoing consultation with SHPO, as described in Section 8, “Historic Resources.”



**Section 21:****Growth-Inducing Aspects of the Project**

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Changes in background conditions and to the Project would not alter the conclusions of the 2006 FEIS related to growth-inducing aspects of the Project. Since the overall program of the Project is the same as analyzed in the 2006 FEIS, the project would generate the same number of workers at the Farley Complex and the same number of workers and residents at the Development Transfer Site. Since the proposed uses of the Project would be the same as assessed in the 2006 FEIS, the Project would be compatible with the surrounding area and the goals of the 34th Street Partnership, and would be consistent with the requirements of the Special Hudson Yards District and, specifically, the Farley Corridor Subdistrict. Further, development of the new Moynihan Station would be consistent with key public policies that identify the need for an efficient intermodal transportation facility at Penn Station that meets New York's complex future transportation needs. Therefore, the Project, like the project assessed in the 2006 FEIS, is not likely to induce growth. Rather, it would be part of the region's response to the anticipated long-term growth of economic activity in Manhattan.

## **Section 22:                    Irreversible and Irretrievable Commitments of Resources**

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Like the Project as assessed in the 2006 FEIS, the Project would expend several resources, both natural and built, in its construction and operation. These resources include the building materials used in construction, energy in the form of gas and electricity consumed during construction and operation of the building, and the human effort (time and labor) required to develop, construct, and operate various components of the Project. These resources are considered irretrievably committed, because their reuse for some purpose other than the Project would be highly unlikely. However, the Project, like the Project as assessed in the 2006 FEIS, would involve the reuse of an existing historic building and the retention and restoration of the building exterior and portions of the interior. Thus, as identified in the 2006 FEIS, this aspect of the Project would reduce the amount of resources consumed during construction, as compared to the construction of a new train station.

## **Section 23:**

## **Short-Term Uses vs. Long-Term Productivity**

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Since the overall program of the Project is the same as assessed in the 2006 FEIS, the Project would still be considered to have a significant benefit in considering short-term uses of the environment versus the maintenance and enhancement of long-term productivity. Although the Project, like the Project as assessed in the 2006 FEIS, would require the irreversible and irretrievable commitment of resources during the renovation of the Farley Complex and the additional development of 1 million square feet of currently unused development rights, it is anticipated that these commitments would be substantially off-set by the long-term gains of increasing the efficiency and capacity of the current Penn Station and through the adaptive re-use of a historic structure.

Moreover, the new Moynihan Station would result in a significant improvement to the passenger experience and facilitate a better utilization of Penn Station, as was concluded in the 2006 FEIS. The station would also be an important element in extending the transportation hub westward in anticipation of the large amount of new development projected west of Ninth Avenue. In all, the Project would improve existing passenger service at Penn Station, accommodate new rail passengers, and would create more access to New York City for its residents, its daily workers and commuters, and tourists. Further, the additional commercial and mixed-use elements of the Project are complementary to the overall goals of the Hudson Yards area of Midtown.

In addition, the rehabilitation of an important historic landmark greatly extends the long-term productivity and viability of this cultural asset. \*

**Section 24:****Conclusion**

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As a result of the analyses detailed in the various sections of this Technical Memorandum, the proposed Amended GPP and changes related to the design development, schedule change, background conditions, new information, and analysis methodologies would not, considered individually or together, result in any new or substantially different significant adverse environmental impacts not adequately addressed in the 2006 FEIS. \*